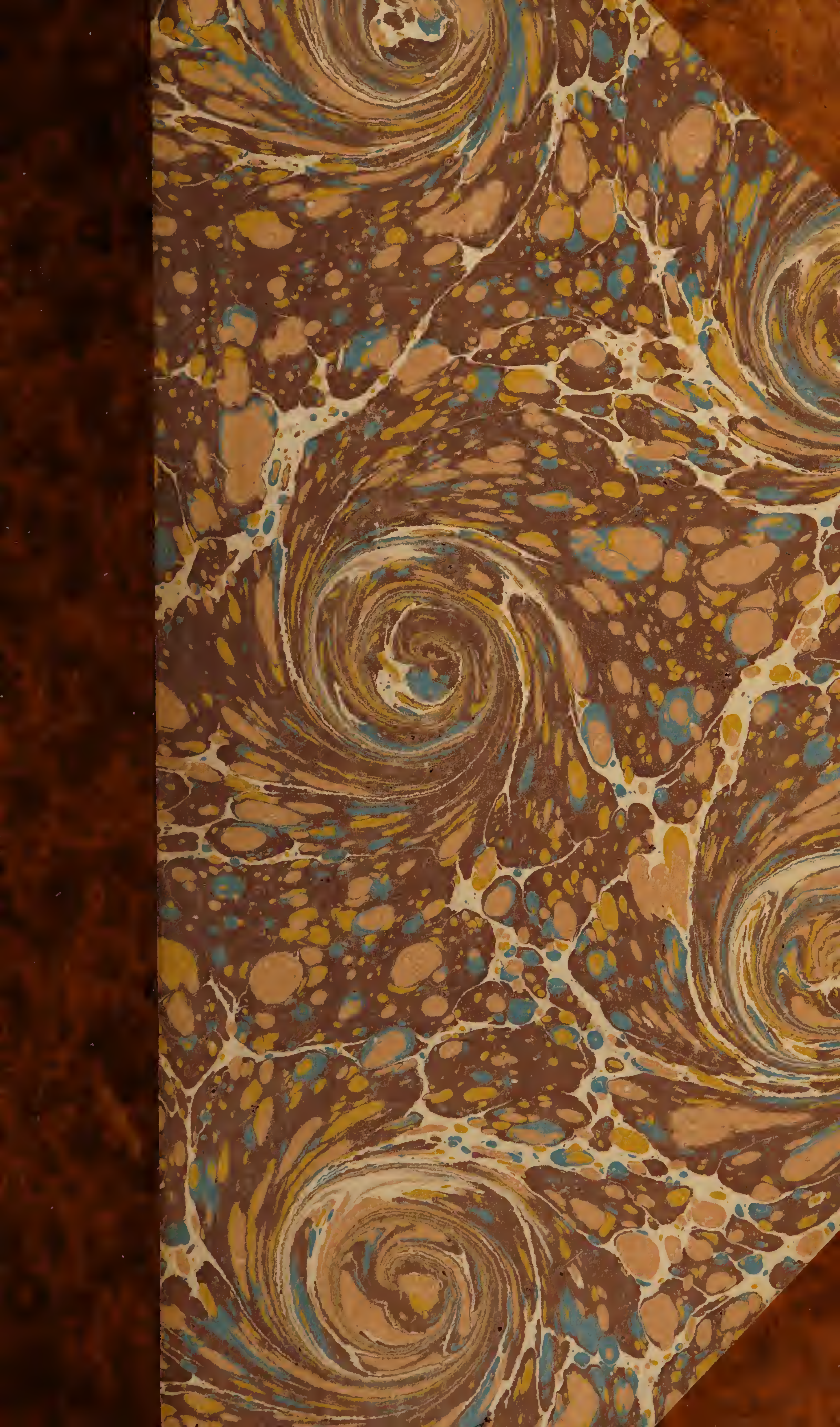
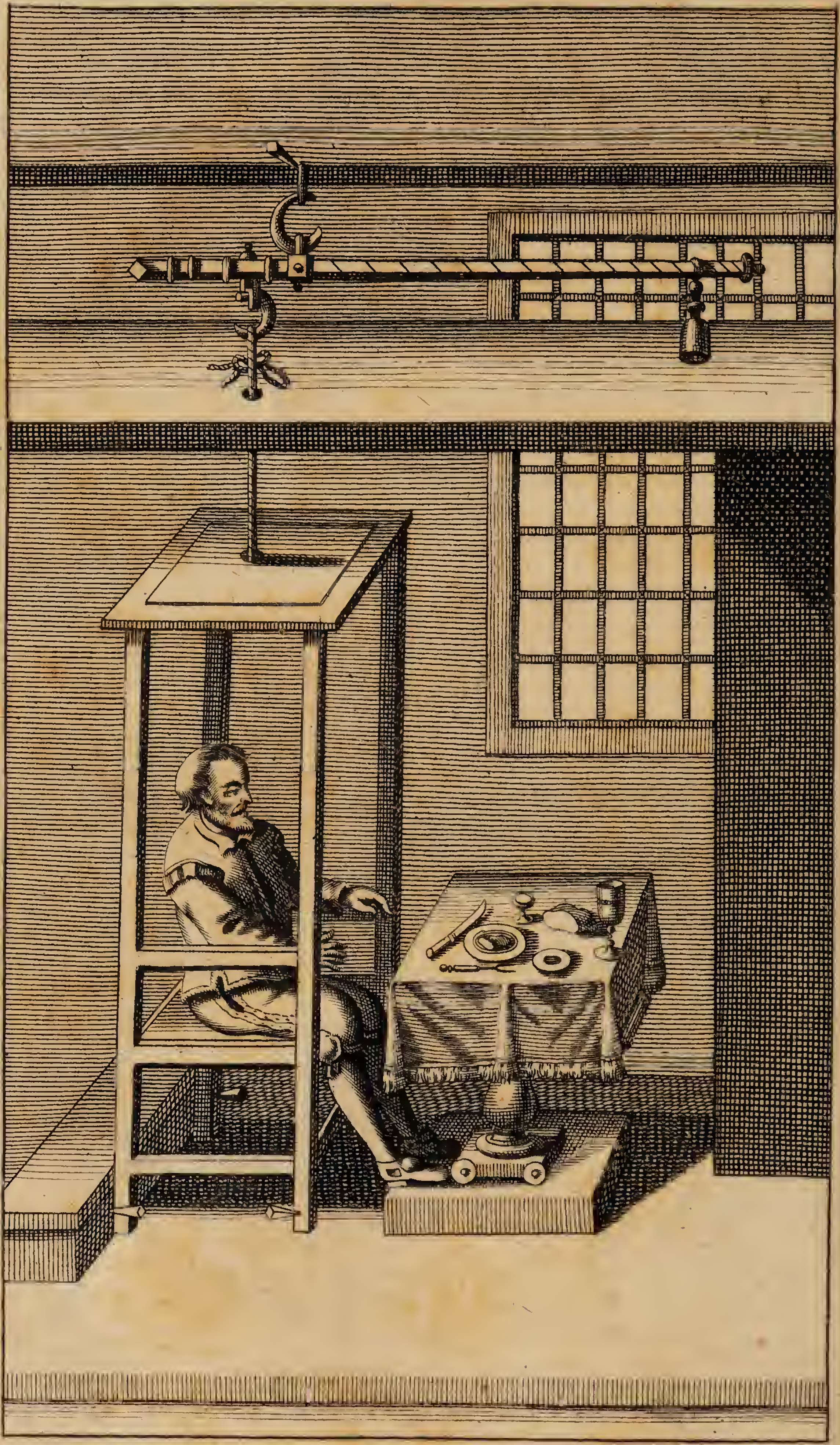


45932/B

Digitized by the Internet Archive
in 2019 with funding from
Wellcome Library

https://archive.org/details/b3051020x



Medicina Statica:

BEING THE

APHORISMS

OF

SANCTORIUS,

Tranſlated into ENGLISH with large
EXPLANATIONS.

Wherein is given

A MECHANICAL Account of the ANIMAL OECONOMY, and of the Efficacy of the NON-NATURALS, either in bringing about or removing its *Diſorders* :

Alſo with an

INTRODUCTION

Concerning *Mechanical Knowledge*, and the *Grounds of Certainty* in *Phyſick.*

By JOHN QUINCY, M. D.

Pondere, Menſurâ, & Numero Deus omnia fecit.

LONDON:
Printed for WILLIAM NEWTON, in *Little-Britain.* MDCCXVIII.

WELLCOME
HISTORICAL
MEDICAL
LIBRARY

THE PREFACE.

I Perſwade my ſelf that there will be but little need of an Apology for the following Performance, with regard to the Deſign of it. The Aphoriſms *of* Sanctorius *have long been in the beſt Eſteem with all good Judges, who have had the luck to be acquainted with them; and hereby I have endeavoured only to bring them into a larger Acquaintance, both by rendering them in our own Language, and giving ſuch Explanations of ſome of the moſt difficult, as may make them eaſy and intelligible, almoſt to any Perſon who has given himſelf the leiſure to reflect at all, upon the Nature of his Conſtitution, and the Changes it is moſt apt to undergo by the Influence of external Cauſes.*

This Collection of Aphoriſms *has not only been a particular Favourite with the* Faculty, *but alſo has had a great ſhare in the good Eſteem of all other Perſons of Underſtanding; than which there cannot be a more convincing Proof of its worth, Truth never fails of Entertainment when it appears in its natural Dreſs; as it may generally be obſerved in any Science whatſoever, that when any thing is advanced and maintained by that natural and peculiar way of thinking, which the Mind is fitted to, it will make its way with every Man of Senſe, as well as with thoſe who have been trained up in the Myſteries of that Science.*

Knowledge indeed is branched out into ſeveral Channels, all of which have by the Subtilty of ſome Enquirers been purſued into ſuch Intricacies, as makes it very difficult to follow them, and by ſome have been ſo much diſguiſed, as to make it even impoſſible to do it; but when an unprejudiced Perſon is reſolved to venture of himſelf, upon the ſtrength only of thoſe Capacities his Maker has thought fit to beſtow upon him, and purſues his Enquiries with that Simplicity, and upon ſuch Evidences as the Nature of his Subject will admit of, ſo far as he advances will be attended with Plainneſs and Conviction, and be as eaſily made appear to any other Perſon of tolerable Senſe, as to the common Stagers of that Subject.

To this natural and free way of Enquiry it is that Sanctorius has been able to oblige the World with this excellent Collection of Aphoriſms. Sometimes indeed he is very apt to lay hold of his Syſtematical Helps; but it is very remarkable, that he is never more obſcure than at ſuch times. He lays down his matters of Fact upon ſuch Evidences as cannot deceive; but when ſometimes he goes farther, and gives Reaſons, why it is ſo, he is hardly to be underſtood. As when he tells us, that Cold ſtrengthens robuſt Conſtitutions, but weakens thoſe who are infirm, there is no body can doubt of the truth of it; but when he gives his Reaſon, that Cold drives the natural Heat to the Center, in the former, and exhales it in the latter, I believe there are very few e'er the wiſer.

Theſe Aphoriſms have formerly appeared in Engliſh under the Title of Rules of Health; but the Tranſlator has retained ſo many Terms and Latin Phraſes, that the Original I ſhould think as eaſy to an Engliſhman as the other, had it not gone off ſo much, that at this time it is hardly to be met with. Dr. Liſter has alſo given an Edition in Latin, with his Notes upon each Aphoriſm; but hardly with any other Ad-

vantage to the World, than making Sanctorius, *who was before ſcarce, more common to be met with. Indeed I cannot make any large Acknowledgment for his Aſſiſtances in what I have done, although I hardly omitted conſulting him upon every* Aphoriſm, *for in moſt I found my Author more intelligible than his Commentator; but in his Notes upon one Place, where he ſpeaks of* Specificks *working by inſenſible Perſpiration, and with the* Bark *mentions the* Ipecacuanha, *as one of the ſame Tribe, he ſeems to have fallen into a Miſtake as great as it is poſſible to meet with.*

As to the Aphoriſms, *I have tranſlated them as cloſe as I am able, I mean as to the Author's Senſe, and taken as much care as poſſible therein not to tranſplant any hard phyſical Terms; and where that could not be avoided, I have been particularly careful to make them intelligible in the* Explanations. *The ſixth* Section *of* Venery, *I had ſome Thoughts of leaving out; but for fear ſome would look upon the Collection maimed thereby, and not be contented without all that* Sanctorius *himſelf thought fit to give to the Publick, I have inſerted it in its place, and I hope in ſuch Terms as are as chaſt and inoffenſive, as our Language will bear.*

In the whole my Intentions have been only to make theſe Rules plain and uſeful to all ſuch as are deſirous of having ſome tolerable Notions of themſelves, with relation to the Recovery or Preſervation of their Health; in ſuch common Inſtances I mean, where every thing that turns up in the Courſe of a Man's whole Life cannot but have ſome Influence. In acute Diſeaſes indeed, and ſome obſtinate chronick Caſes, I do not by any means ſuppoſe, that it is poſſible for a Perſon to be a Judge for himſelf, and that there is not then abſolutely neceſſary the Advice of a Phyſician; but in the common Affairs of Life, I ſay, *there are a great many things, which if an ordinary Perſon be well appriſed of, may be turned very much to his Benefit or Injury, according as they are managed. And it is with regard to theſe things, by ſome called the* Non-naturals, *that our Author has with an abundance of Labour and Judgment, and upon unerring Guides, compoſed the following Rules; in the Explanations of which I am far from pretending to any thing of Aſſiſtance to thoſe who have been advanced in, and are converſant with Phyſick; but endeavour only in ſuch a manner to explain thoſe Rules, as to give a Perſon of any tollerable Underſtanding, ſome juſt Notions of the Nature of his Conſtitution, and of thoſe means by which it is to be either injured or ſupported.*

We have a common Saying, that a Man at Forty, is either a Fool or a Phyſician, from whence may thus much be gathered, that a wiſe Man by obſerving what Effects every thing which turns up in the Courſe of his Life has upon his Conſtitution, may come to a tollerable good Underſtanding of what will promote or injure his Health. Where then a Man has with the utmoſt Pains and Fidelity, gone thorough a Courſe of Obſervations upon ſuch unerring Guides, as with Certainty to determine the Effects of all theſe things upon his own Perſon, a Communication of them to the World with ſuch Lights and Aſſiſtances as may render them eaſy and intelligible to an indifferent Capacity, can, I hope, be no unacceptable Preſent. It is already out of Diſpute that Sanctorius *has done the former Part, and by this I have offered my beſt Endeavours towards the latter.*

I am not at all unaware how ſevere ſome will be hereupon, in requiring how often they muſt weigh themſelves, and whether they ought to eat and drink by the Ounce; to whom I have only this to ſay, that Sanctorius *by the* Ballance *has already done enough* *to convince any ſerious Perſon of the natural Diſcharges, and their Proportions to one another, the moſt conſiderable of which,* viz. *that by inſenſible Perſpiration was but very little attended to before; from which, and all the Conſequences of thoſe Diſcharges from the leaſt to their greateſt Quantities poſſible, any Perſon may ſoon be a Judge of the preſent State of his Conſtitution, without going into a Pair of Scales. And for this Reaſon it is that I have not been nice in ſearching into the Exactneſs of the* Sanctorian Calculations, *the End I propoſe being anſwered by knowing that there are ſuch Diſcharges, how they are to be influenced, and what will be the Conſequences of their Diſorders. Beſides were a Perſon to make Experiments with the* Ballance, *it is not at all likely that they ſhould exactly agree with* Sanctorius's *Accounts, both our Climate and way of Living being ſo very different from his. He was Profeſſor at* Padua *in* Italy, *a Country much hotter than ours, and where their Diet is not ſo much upon Fleſh as with us; all which cannot but very much influence all the Evacuations, but eſpecially that made by the cutaneous Paſſages.*

There is one farther Reaſon for taking Sanctorius's *Account herein, which with ſome Perſons may have conſiderable weight, altho' with my ſelf I confeſs it has but little, and that is Authority; for there has not been one of any Note who has called it in Queſtion; but all take it for granted, and draw their Concluſions from it accordingly.* Dr. Pitcairne *has built his* Diſſertatio de Curatione Febrium, &c. *intirely upon it; ſome of which I have given an Abſtract of under one of the* Aphoriſms, *although I fear he has taken a* Poſtulatum *which cannot be granted; about the Subſtraction of the peccant or morbid Matter equally by any of the Diſcharges; for nothing is more obſervable, than* *that a Fever has its* Criſis *frequently by ſome of the ſmaller Diſcharges, the Matter of which could not by any means be drawn off by any of the other, although much larger in Quantity; and thus ſometimes it is found that one Stool goes farther towards a removal of the Diſeaſe, than an increaſed cuticular Diſcharge for ſome Days together.*

In all the Explanations I have ſtudied as much as I could Plainneſs and Brevity, although indeed in a few Places I have ſuffered my ſelf to go into a conſiderable length, which therefore I have inſerted as Digreſſions; but in all I hope there will be found nothing but what may be of uſe in illuſtrating the whole, either as it may afford ſome good Hints in the true Structure and Mechaniſm of a human Body, or in the Means by which it is moſt advantageouſly wrought upon for the Regulation of its Diſorders. In that Digreſſion concerning the make of an animal Fibre *and its* Elaſticity, *I muſt confeſs I have truſted moſt to my ſelf, and therefore am very timerous about its Reception. If any one thinks fit to advertiſe me of any Miſtake therein, it ſhall be returned with the beſt of my Acknowledgment. In that alſo concerning* Agues, *and their Cure without the* Bark, *I fear ſomething too poſitive in the Expreſſions; if it ſo appears to any, I ask their Excuſe. The Pains I have been at to make my ſelf Maſter of that Diſtemper, and the Succeſs I have frequently met with in its Cure, may perhaps have drawn me into a Confidence, which if I know my ſelf, I think I am no Lover of.*

What I have here inſerted by way of Introduction, *has been a long time the Subject of my Thoughts, and often in my Intentions to make publick; but it falling in ſo well with the Contents of the following*

ing Sheets, I have therefore contracted it as ſhort as I could, on purpoſe to bind up with them. Mechanical Reaſoning is what is much talked of now in Phyſick, and by ſome perhaps more than it is well underſtood; but the greateſt number of Profeſſors in Medicine are declared Enemies to it, and make nothing of breaking their Jeſts upon Angles, Cylinders, Cones, Celerity, Percuſſion, Reſiſtance, *and ſuch like Terms, which they ſay have no more to do with Phyſick or a human Body, than a Carpenter has to do in making* Venice *Treacle, or curing a Fever. It is therefore for the Information of both theſe, that I have been at the Pains of ſhewing what* Mechanical *Reaſoning is, and proving that all* Phyſical Certainty *depends upon the ſame Principles.*

Thus far having given an Account of what may be expected from the following Sheets, nothing elſe I think concerns me by way of Preface, beſides begging my Reader not e'er the more to ſlight the Performance, becauſe the Author is not ſo happy to have any other Diſtinction than that of an Apothecary: *A Name which has the Misfortune to ſound but indifferently with thoſe who very much value themſelves upon Academical Advantages. The want of ſuch Aſſiſtances I muſt confeſs my ſelf to have been very ſenſible of, and ſhall for ever lament my Unhappineſs therein; but ſo far as I have in this Work invaded the Province of the* Faculty, *I cannot conceive how it can be looked upon to lye out of the reach of any common Capacity, aſſiſted only with ſuch Helps as an inquiſitive Mind and frequent Opportunities of Obſervation are able to ſupply. I hope it needleſs to inſiſt upon the ſeveral Advantages any Perſon in ſuch a City as this is cannot but have towards their Improvements herein; It muſt ſurely then be very hard that an* Apothecary *only, whoſe proper Buſineſs leads him a great way into theſe*

Affairs, muſt be tied down to perpetual Ignorance. What Improvements I have made of them for my ſelf, I have ventured to the Teſtimony of the following Pages; and hope therefore that all the Miſtakes that may be found in them, will the more readily be overlooked, because I have had no better.

THE

THE

INTRODUCTION.

Of Mechanical Knowledge, and the Grounds of Certainty in Phyſick.

PHyſical Writers of late have with a great deal of Induſtry and Succeſs introduced *Geometry* into their Studies, and endeavoured to account for all that concerns the Animal Oeconomy upon Mechanical Principles: and this they ſeem to have done, not only as the beſt means to get clear of all ſuppoſitious and deluſory Syſtems, but alſo as to them it has appeared to be the only way by which we are fitted by our Maker to arrive at any ſatisfactory Knowledge in the Works of Nature: But becauſe ſome herein have gone ſo far, as to give even occaſion of Offence to ſeveral who happen not to have their Heads well turned this way, and who, out of ſome Prepoſeſſions in Favour of occult Qualities, Smpathies and Antipathies, and the like, cannot bear without Indignation and Scorn to ſee thoſe great Myſteries of Phyſick, and that excellent Frame which is its Subject, that beautiful Epitome of the Creation, marked out like a Spot of Earth or a Piece of Timber, with Rule and Compaſſes: For this Reaſon, I ſay, it is that by this Introduction is intended an Enquiry into the means by which we arrive at any Certainty in Phyſick, and to ſhew that it is not to be done without ſuch Helps; for I cannot but be perſwaded that the ſmall Progreſs which has been made in Phyſical Knowledge for a long ſpace of Time, is chiefly owing to the want of a due Attention to thoſe Powers and Capacities of the Mind, by which only it is enabled to purſue ſuch Enquiries; otherwiſe certainly ſo many, who pretend alſo to be no mean Proficients therein, would not take ſo much Diſtaſte at all Pretences of this kind, as it is common to meet with; and affirm oftimes that the Beſt talk but learnedly of what they know nothing of, and that the whole is meer gueſs-work. It is for the ſake of ſuch, that I am willing to be at the Pains to convince them that the Fault is not in the Science, by its not affording ſufficient Evidences to build any Certainty upon, but in themſelves, in their Ignorance in the means by which that Certainty is to be obtained.

And in this I have hopes in a great meaſure of ſucceeding, by demonſtrating that thoſe Rules and Laws of Motion, which we are furniſhed with from *Mechanicks*, are the only Guides we can have in diſcovering the Natures and Properties of all material Subſtances whatſoever, and that by theſe Aſſiſtances they are knowable, and that too with the greateſt Certainty. And this I much the rather chuſe to do in this Place becauſe our Author, although he compoſed theſe *Aphoriſms* at a time when this way of Reaſoning was but very little made uſe of in Phyſick, and ſeems to have had but very little Regard for it himſelf; yet the means of Information he hath herein uſed have ſo ſteddily guided him throughout the whole, that there is but very little advanced, but what is very conformable and applicable thereunto, and what may be demonſtrated with the utmoſt Clearneſs and Certainty. And this Succeſs he hath herein met with is plainly owing to his Diſregard of all Prepoſſeſſions, following Nature in her Simplicity, and grounding his Concluſions only upon ſenſible Evidences; which in this Eſſay I ſhall endeavour to prove are our only means of Information in theſe Studies, and that they only furniſh us with all our Materials of Knowledge in Phyſick. If therefore in the Proſecution of this Matter the Reader ſhall think, that ſome Thoughts are drawn out into too great a length, I hope it may be excuſed, if they are found but at all conducive to the Illuſtration of an Affair of this Importance.

When a Perſon ſets out upon any Enquiry, nothing can be of greater Concern, than to be firſt well acquainted with the Powers and Capacities of his own Mind, and the means by which only the Matter he has in purſuit is attainable. For as the Capacities of the Mind are very extenſive, ſo every one but indifferently converſant with himſelf, will alſo by Experience find that there is a great deal of difference in the means by which it is fitted to receive all its Materials of Knowledge; and that the ſame ways by which it comes by its Notices of one thing, and by which it is carried on to all the ſeveral Degrees of Aſſent, is vaſtly different from the means by which it receives its Informations about ſome others. If then this neceſſary Reſult of that peculiar manner by which the Author of our Beings has thought meet to fit us for Knowledge, be not well enquired into, it muſt needs be a great Chance if ever ſuch a Perſon arrives at any conſiderable ſhare of it, becauſe he cannot but frequently fall into a uſe of the wrong means, whereby he will be either ſo perpetually bewildred with Obſcurity, as at laſt perhaps to throw off all farther Enquiry, or fall into ſome imaginary deluſory Schemes, which have no Foundation in Nature, and which will much ſooner make him an Enthuſiaſt than a Philoſopher. And this is as manifeſt to any one who will give himſelf the leiſure and trouble of Reflexion, as that our Organs of Senſe are ſo differently framed that one cannot perform the Office of another; ſo that to ſeek after Knowledge upon different Subjects, by the ſame means, is not leſs abſurd than to ſuppoſe, becauſe my Noſe informs me that a Roſe is ſweet, that it can without the help of my Sight or Taſt teach me that it is alſo red and bitter.

But to ſet this ſtill in a more clear Light I ſhall ſhew by a few Propoſitions, the different ways the Mind muſt neceſſarily take to be inſtructed therein, and convinced of their Certainty. As for Inſtance,

1. That *Julius Cæſar* was ſtabbed by *Brutus*, and other Conſpirators, in the Capital at *Rome*, above Seventeen hundred Years ago.
2. That there is an eternal immutable difference between Good and Evil, as that it eternally will be looked upon by reaſonable Beings, that Gratitude to a Benefactor is juſt and commendable, but Ingratitude wicked and hateful.
3. That the three Angles of any Triangle are equal to two right ones.

In the firſt Propoſition as ſoon as a Perſon is told it, he conſiders the Capacities and Abilities of the Perſon that is his immediate Informer, and the means by which he came by it himſelf: When that is done, then comes to be conſidered the Credit of his Authors with other unprejudiced Perſons; he takes alſo into conſideration their Numbers, the Agreement of their Stories, the Improbability of the preſent and ſucceeding Ages to that Action, being impoſed upon, and the Folly of endeavouring to do it, was it not Truth; until at laſt he comes as fully to be convinced of the Reality of it, as of any thing done but Yeſterday, in his own Country.

In the ſecond the Mind goes quite another way to work; for what convinced him of the former, he finds no Aſſiſtance from here, or is it of any manner of weight with him, what the Perſons are that affirm it, but he is altogether determined by the Notions and Ideas he has in his Mind of Good and Evil, Gratitude and Ingratitude; which he at length finds to be ſuch neceſſary Oppoſites to one another, that there muſt eternally be a difference between them; and inſomuch that it is not in the Power of any Being whatſoever to change them, the Diſtinction it ſelf being ſupported by the Impoſſibility of an Omnipotent perfect Being's doing any thing but what is good and agreeable to his own Nature; but to confound right and wrong, Good and Evil, ſo as to make what is abſolutely Good to be Evil, and *è contra*, is deſtroying the neceſſary Idea every reaſonable Creature has of a Deity, ſubverting the Foundation of all Obligations, and therefore can it never be done.

But when he comes to the third Propoſition, he again finds a Neceſſity of altering his Meaſures, although as in the former, the Credit of the Perſon pronouncing it ſignifies not one jot towards obtaining his Aſſent, The firſt thing then he does is to get clear Ideas of the Terms of the Propoſition, in which he finds himſelf obliged to his Senſes, and that in the whole Affair he proceeds by their Evidences only: To this purpoſe therefore he deſcribes Angles to be view'd by the Eye, and learns how to meaſure and compare them with one another, until at laſt by the Evidences of his Senſes only he is beyond all doubt convinced that the three Angles of any Triangle whatſoever are equal to two right Angles. And in any Propoſition of this Nature, although after ſome time a Perſon comes to be ſo converſant with the Terms uſed therein, that he may frequently be able to apprehend the Reaſon and Truth of it without picturing of it to his Sight by a Diagram; yet the Mind all the way imagines it, and keeps the Picture of the thing ſpoke of cloſe in view; for no longer than he does ſo can he diſcern his Evidences, and conſequently without it can never make any certain Concluſion.

But becauſe by this laſt Inſtance I ſhall endeavour chiefly to illuſtrate what is meant by Mechanical Knowledge or Phyſical Certainty, I would herein be as particular and plain as poſſible, and therefore ſhall go thorough the ſeveral Steps whereby the Mind comes at the Truth of this Propoſition; which although it may be done various ways, yet they all agree in this that they keep always cloſe to the ſame Evidences.

1. To know clearly what is meant by a right Angle, let the Perpendicular F. G. be let fall upon the right Line X. Z. and it makes two right Angles M. N.
2. If then the Perpendicular F. G. be drawn thorough X. Z. as in Fig. 2. there will be made four right Angles, M. N. O. P.
3. Farther, if the Perpendicular F. G. be changed into a Line which cuts the other X. Z. obliquely, as in Fig. 3. there will four Angles be made thereby; which although not equal to one another, yet their Sum, that is, taken altogether, will be equal to four right Angles. For as much as the Angles O. N. are leſſened, the other oppoſite Angles M. P. will be enlarged, and therefore their Sum will be as before.
4. If again, as in Fig. 4. there be another Line S. T. drawn Parallel to X. Z. then there will four more Angles 1. 2. 3. 4. be made in all reſpects equal to the former, M. N. O. P. for M is equal to 1. N is equal to 2. O is equal to 3. and P is equal to 4. as may be demonſtrated at large.

Thus far then being known of Lines, and the Angles they form by theſe Poſitions one to another; let a Triangle be formed as in Fig. 5. and the Side A. B. be extended as far as E. it is plain by Step 1. 2. 3. that the internal Angle A. and the external Angle D. taken together are equal to two right ones; If therefore it can be proved that the Angles B. and C. amount to juſt the ſame as the Angle D. then the Propoſition will be demonſtrated. To this purpoſe therefore the beſt way is to try to divide D. into two Angles in ſome ſuch manner, if poſſible, as to be commenſurable ſeparately to B. and C. and how this may be done appears from Step 4th, by drawing a Line through the Vertex, as X. Z. which ſhall be Parallel to the Baſe B. C. as in Fig. 6. and will cut the external Angle into K. and L. Now by the ſame Reaſon that N is equal to 2. Fig. 4. or that there is an exact Equality between the correſpondent Angles made by each Parallel; for the very ſame Reaſon, I ſay, is K equal to B. in Fig. 6. and E equal to C. If then the Sum of A. E. K. is equal to two right Angles, as before proved, and B added to K. is equal to K added to E. then the Sum of A. B. C. will be equal to A. E. K. that is equal to two right Angles, which was to be demonſtrated.

And thus by theſe three Inſtances, may it eaſily be perceived how differently the Mind is engaged in its Enquiries upon different Subjects; for although all theſe admit of Certainty, yet it is come at by very different means; with very good Reaſon therefore they have by ſome been diſtinguiſhed into Hiſtorical Certainty, Moral Certainty, and Demonſtration. The firſt depends upon the Credit and Abilities of the Reporter: The ſecond, upon the neceſſary Ideas of a good and perfect Being; and the third upon the Teſtimony of our Senſes, which only is our Guide in all Propoſitions relating to the Natures and Operations of material Subſtances, from the moſt ſimple and incompounded to the moſt intricate and abſtracted whatſoever. For whatſoever of this Nature is laid down for a Truth, let the Authority of the Perſon be never ſo great who pronounces it, even ſo far as to make me certain that he would not affirm any thing but what he knew to be true, and likewiſe would not by any means lead me into an Error; yet until I go ſome ſuch way to work as hath been taken in this laſt Inſtance, and come to ſee the Reaſon and Neceſſity of its being ſo my ſelf from the ſame Evidences, I cannot be ſaid to know it, or ſhall I ever be able to make uſe of it to any advantage, were it applicable to never ſo many good Purpoſes.

This laſt way of Inſtruction likewiſe as it depends upon Demonſtration, that is upon ſuch Evidences as cannot deceive, ſo there are a great many ways frequently of proving the ſame thing, and all with equal Certainty, becauſe they all in the ſame manner keep cloſe in view the ſeveral Steps by which it is made appear; as may be ſhewn in the Propoſition above-mentioned, which will admit of ſeveral ways of Demonſtration. That which I have taken here indeed is neither ſo ſtrictly demonſtrative as Mathematicians require in all its Steps, or ſo conciſe as might be; becauſe I have contrived it only in ſuch a manner as to prove to a Perſon that never before heard of it, that the Propoſition is certainly true, and to illuſtrate that particular Procedure which the Mind neceſſarily takes in all its Enquiries of the like Nature.

Thus far I believe is attended with no manner of Difficulty, although perhaps ſome are by this time ready to ask, what has all this to do with Phyſick? My Buſineſs therefore next ſhall be to ſhew that all our Knowledge of the Operations and Effects of Phyſical Agents, that is, of all the Alterations and Changes that are brought about in the viſible World by the immediate Agency of Phyſical Cauſes, to ſhew, I ſay, that all our Knowledge of theſe Matters, is taken in by the ſame Means, and depends altogether upon the ſame Evidences. After which I ſhall endeavour to apply it to Medicine, and prove that all we can know of a Human Body, both with regard to the Frame and Mechaniſm of its Parts, and to the rectifying of its Diſorders by Medicine, to be likewiſe upon the ſame Principles.

The firſt of theſe I expect will be anſwered, when it appears that all the eſſential Properties of Matter, (ſuch Properties I mean as are inſeparable from it under what particular Mode or Form ſoever it exiſts) are no other than what our Senſes very clearly and diſtinctly diſcover to us, and that we have no other way of knowing them but by their Information. And to this purpoſe it will be very convenient to go over the firſt Notices we have herein by theſe Aſſiſtances; that is, thoſe Properties of Matter or Body, which from the Teſtimony of our Senſes are demonſtrative and ſelf-evident, and which cannot but excite in every one that attends to them the ſame Ideas; and hereby we come by very clear and diſtinct Ideas of Solidity, Extenſion, and Figure.

In every Body or Parcel of Matter, under whatſoever Mode of Exiſtence, we immediately find in it a Power of Reſiſtance; ſo as not to admit any other Body in its Place, unleſs by any external Force it ſelf be firſt removed out of it. This we find neceſſarily and univerſally to hold good in all Bodies, both fluid and ſolid, For although the conſtituent Parts may be fitted never ſo much to form a yielding fluxile Body; yet when the Mind conſiders it only as it is Matter, or ſomething corporeal, and purſues it to its ſmalleſt conſtituent Parts, it will appear ſtill with the ſame Neceſſity to be endewed with this Property, as much as if it was the moſt firm and conſiſtent Compoſition of Matter whatſoever. Thus the Air incloſed in a Bladder, as much reſiſts the Sides of it being brought to a cloſe Contact, by any external Preſſure, as this Book between my Hands prevents their touching one another. And this is the very ſame which ſome pleaſe to call Impenitrability, which is but as much as to ſay, that every Body or Parcel of Matter is ſo ſolid, as not by any means whatſoever to allow of another Bodies being thruſt into, and poſſeſſing the ſame Place, which that takes up before it is firſt thruſt out, and thereby makes room for the others coming into it.

Extenſion alſo appears with as much Clearneſs and Conviction to be another Property; although not as Solidity, which can be applicable to nothing elſe, becauſe, as will farther appear a little below, it is eaſy to conceive of an abſolutely extended Space, that is empty of all Body, or which is the ſame thing, a commenſurable Diſtance between two Bodies, that are remote from each other, and yet have no other Body between them: Although indeed the *Carteſians* have puzled themſelves in this Matter, by making the Eſſence of Body, as they call it, to conſiſt in its being extended, and thereby conclude falſely, that *omne Extenſum eſt Corporeum.* Every Body is circumſcribed by ſome Bounds, otherwiſe it would be infinite, which is abſurd to ſuppoſe; theſe Bounds then are called Superficies or Surfaces, and nothing can be more plain than that there is a certain commenſurable Diſtance between ſuch Superficies, greater or leſſer in Proportion to the Bulk of each Body: Theſe Superficies moreover not being infinite, their Bounds are called Lines, which likewiſe are diſtant from one another: Theſe Lines alſo muſt have their Bounds, and they are called Points, between which likewiſe there muſt with equal Neceſſity be ſome Interval. Now from all theſe different Diſtances taken together, we become furniſhed with a clear Apprehenſion of what is uſually called the Trine-Dimenſion, that is, *Length*, *Breadth*, and *Thickneſs*, which every Body or Parcel of Matter cannot but be endewed with, although broke into the moſt conceivable Smalneſs. The Diſtance between its oppoſite, or upper and lower Superficies, is called its *Depth* or *Thickneſs*; between the oppoſite Lines terminating thoſe Superficies, *Breadth*; and between the oppoſire Points bounding thoſe Lines, its *Length*.

With the ſame Evidence likewiſe we become furniſhed with a clear and diſtinct Idea of Figure, and diſcern the Impoſſibility that any Maſs of Matter, how large or ſmall ſoever, ſhould exiſt without it. For if a Body be broke and divided into its *Minima naturalia*, or as far as Thought it ſelf can conceive it poſſible to be done, yet there ſtill will appear the ſame Reaſon and Neceſſity, that every the moſt minute Particle muſt ſtill exiſt under ſome determinate Figure or other, as before, and as well as the largeſt whatſoever. For Diviſion, although into the moſt inſenſible Parts, can never take away its being figured, and does nothing more, than make two or three diſtinct ſeparate Bodies or Maſſes of Matter of that which was but one before; all which diſtinct Maſſes looked upon as ſo many diſtinct Bodies, after their Diviſion, become ſeverally exiſting under ſome certain Figures, as well as before their Separation, when they exiſted in one entire Body.

Here farther it will be proper to take notice of ſomething, concerning which the Mind takes in as clear an Idea as of any thing whatſoever; which although it cannot properly be accounted an Affection or Property of Body, yet the Idea of Body does ſo readily and naturally inculcate it, that it is impoſſible to reaſon juſtly about the Properties and Affections of material Subſtances without having it always in view: and that is what commonly is called *Space*, and is underſtood to be deſtitute and empty of all Matter; and to this the Property of Extenſion is as juſtly to be attributed as to Body. It is eaſy to conceive of two Bodies at a Diſtance to be moved towards one another, until they come to Touch, without diſplacing any other ſolid Body; as likewiſe to be again ſeparated to the ſame Diſtance from each other as before, without ſuppoſing any other Bodies Interpoſition: whereby we come at a clear Idea of Space void of all material Subſtance, when we have a full Conception in our Minds of that intermediate Void between the two ſeparated Bodies. There is alſo no manner of Difficulty of conceiving of the Motion of any one ſimple Body alone, without the Neceſſity of another's entering into its Place; all others at that time being ſuppoſed to be at reſt; by which means the Place the moving Body did take up, before its being put into Motion, muſt be deſerted; and while others are at reſt remain a Void, and into which any other Body not exceeding its Dimenſions, may enter without any manner of Protruſion or Reſiſtance.

However any rational Creature came ſo far to impoſe upon himſelf as to entertain a Disbelief hereof, I cannot eaſily imagine. But it is certain that ſuch have been the Prejudices which ſome Perſons have taken up from an unaccountable Bigotry to Syſtematical Learning, and to thoſe Schemes particularly which have had the Maidenhead of their Underſtandings, as to have raiſed Controverſies hereupon. Some with their Heads full of the Tricks of a *ſubtile Matter*, and others out of a religious Dread of charging ſuch an odious thing as a *Vacuum* upon Nature, have not made any Difficulty ſometimes of arguing themſelves out of their Senſes. For ſuch as have not quite outgone all Regard to their Teſtimony, cannot but fully be convinced, as well as from Reaſon *a Priori*, by an abundance of convincing Experiments (for this Purpoſe contrived) of the Truth hereof: Although in this Idea there may indeed be made ſome Diſtinction from thoſe before taken notice of, *viz.* that it is rather from a privative than a poſitive Cauſe: But (as the excellent Mr. *Locke* hath already made it fully appear) nothing is more certain, than that we have a great many of our poſitive Ideas or Perceptions even very clear and diſtinct from privative Cauſes; as of *Reſt*, *Silence*, a *Shadow*, and many others. For a full Account of the Sophiſtical Reaſonings, by which ſome have endeavoured to impoſe both upon themſelves and others herein, with a full Refutation of them, the Reader may conſult *Borelli de Motibus naturalibus a Gravitate Pendentibus*, *Prop.* 247 —— 270. and *Mr.* John Keil's *Second Lecture*, in his *Introductio ad Veram Phyſicam.*

There is another Idea likewiſe, which we obtain from our Senſes of the Properties of Matter, and which appears with as much Certainty, and of which we are able to form as clear and diſtinct Notions as of any of thoſe before mentioned, and that is Motion; although indeed it is not in the ſame Reſpect neceſſary and eſſential to it, becauſe we can have a clear *Idæa* of Matter without it. By Motion, I mean a Power of being moved by any external Cauſe from one Place to another. About this likewiſe have been raiſed a great many Sophiſtical Cavils, by ſuch who pretend to too much Cunning to be impoſed upon by ſuch deceitful Informers as their Senſes; but theſe alſo may be ſeen very handſomly expoſed by Mr. *Keil* in the above-mentioned Place.

With equal Certainty alſo we find an abſolute Incapacity in Matter to put it ſelf into Motion, or any ways to alter the preſent State of its Exiſtence, unleſs by the Force of ſome external Cauſe. For although we find every Body ſuſceptible of Motion from the Impulſes of external Agents, yet there is no manner of Conſequence from the Idea of Body, to a Power of putting it ſelf into Motion, but quite the contrary. Let any one conſider the next Stone he meets with, firmly compacted and at reſt, and ſee if he poſſibly can conceive in it a Power of ever being otherwiſe, and not be forced to conclude that it muſt neceſſarily for ever remain ſo, unleſs put out of that State by the means of ſome external Power.

But yet notwithſtanding the Impoſſibility of conceiving a Power of Self-motion to be inherent in Matter, according to the moſt ſimple and moſt natural Idea we can have of it; yet we are evidenly convinced by our Senſes, that its Omnipotent Creator hath endewed it with a Power or Tendency of Motion towards ſome determinate Point or Center, which Power we commonly call Gravity. Although likewiſe as to this Property there does not appear any neceſſary Conſequence from the Idea of Body that it ſhould be endewed with it; yet we find it to hold good in all Bodies or Parcels of Matter whatſoever. If any Body, ſuſpended in a Fluid ſpecifically lighter than it ſelf, be let go, it will tend towards ſome determinate Point; or, as we commonly ſay, fall until it reſts againſt ſome other hard conſiſtent Body, which hinders its farther Progreſs. And this Property or Affection of Matter is the ſame alſo as is meant by the Term Attraction; the Laws and Determinations of which, as will preſently farther appear, are the only Guides we can have in finding out the Powers of all Phyſical Agents. From Motion alſo we come by ſeveral other Ideas, as of Time, Duration, Succeſſion, Place and Number, which in Phyſical Diſquiſitions cannot but frequently be made uſe of.

The laſt general Property of Matter which I ſhall take notice of, (for the Knowledge of which alſo we are beholden altogether to the Information of our Senſes) is its wonderful Diviſibility, or a Power of being broke and divided into Parts of the moſt conceivable Smalneſs. There are a great many Phœnomena in Nature not any ways to be accounted for by a Perſon that is not very well apprized of this Property. As for thoſe Geometrical Demonſtrations which are brought to prove its infinite Diviſibility, I cannot underſtand them to be of any farther Uſe than to ſhew the Penetration of their Inventors; becauſe there are ſuch a multitude of Inſtances, whereby this Property ſufficiently appears to thoſe as are not at all acquainted with ſuch Methods of Reaſoning. As in the Ductility of Gold; when a Piece of Silver is covered with it, although as thin as poſſible, and that Silver drawn out into the greateſt poſſible Length, exceeding a great many thouſand Times its former, it will notwithſtanding ſtill appear in all its Parts to be covered over as at firſt with Gold; which Parts farther being cut as ſmall as poſſible to be viewed by the naked Eye, as every Part has ſome Gold upon it, ſo it cannot but convince the Beholder, to what a prodigious Smalneſs of Parts it may be divided. Monſieur *Rohault* in his *Phyſicks*, Cap. 9. Part 1. has computed with a great deal of Exactneſs, into how many Parts any given Quantity may be divided; as alſo hath Mr. *Edm. Halley*, in the *Philoſoph Tranſact.* N°. 194. done the ſame. This wonderful Diviſibility of Matter alſo very much appears in the *Effluvia* of odoriferous Bodies; ſo ſmall a Quantity as a Grain-weight of ſome of which, will emit ſuch Plenty of *Effluvia*, and for a conſiderable time, with ſuch little waſte of Subſtance, as would be incredible, were it not ſo evidently confirmed by the Teſtimony of our Senſes. For it is on all Hands agreed, that what ſtrikes the Senſes from an odoriferous Body, is actually corporeal, and proceeds from that Body; and whereas there are a great many odorous Subſtances, which in very ſmall Quantities will remarkably affect the Senſe of Smelling at great Diſtances, it is neceſſary that thorough all that Space in which it is ſo perceivable, there ſhould actually be diffuſed a great Plenty of Particles exhaling from that Body; and inſomuch that whereſoever a Perſon is within that Compaſs, thoſe Organs which are ſuited to receive ſuch Impreſſions, ſhall be ſtruck upon and affected by thoſe Particles.

Thus we come by thoſe general Notices of Body, which are the Materials of all Phyſical Knowledge, by the Inſtruction only of our Senſes; and of ſuch other Matters as the Ideas of Bodies, under their preſent Appearances and manners of Exiſtence in the viſible World, do neceſſarily inculcate to us upon the ſame Grounds; as from the Conſideration of Motion, we are brought to that of a *Vacuum*, or a Space void of Matter. From the ſame unconteſtable Evidences alſo are we made acquainted with its Diviſibility and Power of Gravitation, or Attraction, which is but the ſame; and therefore are they equally as manifeſt as any of thoſe other Properties of Matter, of which it cannot be diveſted without looſing alſo its own Exiſtence.

The Eſſential Properties of Matter likewiſe may upon this Account be differently conſidered, tha ſome of them are always the ſame in all Reſpects i all the Compoſitions of Matter, but that others wil admit of different Modifications. Thus Solidity and Inactivity, or an Incapacity of Self-motion, are in al Reſpects the ſame in all Parcels of Matter; ever Particl

Particle of any Fluid is in it ſelf as ſolid as the Particles of the moſt hard and conſiſtent Body whatſoever, nor can any one Body be ſaid to be ſolid one way and another Body another way; for the Cauſe that makes one ſo, makes alſo the other ſo, and exactly in the ſame manner and degree. Howſoever likewiſe any particular Parcel of Matter is managed, and although it be broke and ſubtilized into Parts of the moſt conceivable Smalneſs, yet it even then is as far from having in it ſelf a Power of Self-motion, as it had in a much groſſer Form. But as to Figure and Extenſion, or Magnitude, although there is no Body whatſoever, but muſt neceſſarily be endewed with them, and exiſt under ſome Figure or other, and Degree of Extenſion, yet they may be very different in one Body from what they are in another; and from the continual Occurſions and Attractions of moving Bodies, we find them continually ſubject to Changes; the Points of ſome being ſtruck off, whereby they loſe both their former Figure and Bulk, and others by their mutual Gravitations or Attractions towards one another cohere and form Corpuſcles of new Shapes and Dimenſions.

Thus farther as Figure and Magnitude are the only eſſential Properties which can be diverſify'd, ſo from their different Modifications with Motion reſults all that Variety of Forms and Appearances under which the material World does exiſt: For if the other eſſential Properties will admit of no Variation, then it neceſſarily follows that what Adventitious or accidental Qualities ſoever Bodies appear to be endewed with, it is owing altogether to the peculiar Diſpoſitions of the two former, as they happen to be wrought upon and modified by any external Cauſe, and as thereby they are empower'd by their peculiar Figures, Bulks, and Motions, either to affect us, or any other Bodies in a particular manner.

And as no Body whatſoever has in it ſelf a Power of Self-motion, and as all the Changes and different Forms are not to be effected without Motion, ſo ſuch Motion, from whatſoever external Cauſe it ariſes, will always be likewiſe under the Influences of the Figures and Bulks of the moving Bodies, as well as under the Directions of the impelling Force. To know therefore what will be the Conſequences of the Impulſe of one Body upon another with Relation to the changing the preſent Form of its Exiſtence, and giving it new Qualities, it is firſt neceſſary to find out the Laws of their Motions, and learn by what Properties in the moving Body thoſe Laws are determinable.

But to give an Inſtance how theſe are influenced by the Figures only of the moving Body, let us imagine two or more Bodies of the ſame Magnitudes and Gravities, but unequal in their Figures; as ſuppoſe one a Globe, another a Cube, and a third in the Form of an Hemiſphere, to ſet out together from the ſame Place with equal Velocities, thorough the ſame *Medium*, and in Directions horizontal and parallel to one another. Both their Velocities and Directions would quickly be determined very different from what they were at their firſt ſetting out, by the different Oppoſition they would meet with from the *Medium*; their Velocities would ſoon become unequal, by the different Capacities of their Figures to divide it. For to make room for their Paſſage, ſuppoſe the *Medium* to be Air, but under no Flux or Tendency towards any particular Point, it muſt firſt recede or be moved out of the way by the Preſſure of the moving Body; according to the difference of which Preſſure, the moving Body becomes more or leſs retarded in every Point of the *Medium* it paſſes thorough, ſo that their Velocity will then be as the breadth of their foremoſt Surfaces, or as the length of thoſe Diameters that are perpendicular to the Lines of their Directions; wherefore becauſe the Hemiſphere contains (by Suppoſition) as much Matter as the Sphere, and conſequently has ſome ways a greater Breadth or a larger Diameter, and other ways leſs than the Sphere, when it happens to move with its longeſt Diameter perpendicular to its Direction, it cannot poſſibly move with the ſame Velocity as that of the Sphere, notwithſtanding they are impelled by equal Powers, becauſe it ſtrikes againſt more Points of the *Medium* at the ſame time, and thereby undergoes the greateſt Retardation; and if it happens to move with its ſhorteſt Diameter perpendicular to its Direction, then it would gain Ground of the Sphere, by its not meeting with ſo much Oppoſition in its Progreſs. And ſo according to every ones Figures, and Poſitions to their Directions, would their Velocities be more or leſs retarded.

In like manner will their Directions ſoon be varied, by the Difference of their Figures, for the Sphere, (ſuppoſing the Reſiſtance of the *Medium* to be uniform on all ſides, and likewiſe that the Sphere it ſelf had no other Tendency but that way where the impelling Force had directed it) would fly in a right Line until its motive Powers were wholly ſpent; but ſince the Air thorough which it is ſuppoſed to move continually weighs upon it and preſſes it downward, and likewiſe that it hath in it ſelf an Inclination different to the Line of its Direction, *viz.* towards the Earth, by the Influence and Concurrence of theſe two Powers it muſt neceſſarily deſcribe a Curve Line, continually tending nearer the Earth as its motive Powers decreaſe upon the Reſiſtance of the *Medium.* But neither of the Bodies in the Figures of a Cube or a Hemiſphere, will be able to deſcribe ſuch a Line, becauſe the Inequality of their Surfaces will expoſe them to an unequal Preſſure or Reſiſtance. For by the foremoſt Point of the moving Body muſt the *Medium* be divided, which recedes, upon its Impulſe, laterally; but if from that foremoſt Point of the moving Body, its Surface ſtretches out farther on one ſide than on another, or comes nearer to a right Angle with the Line of Direction, than the other, that is, than the oppoſite ſide does; then it meets with a greater Stroke on that ſide than on the other, and conſequently is deflected from its firſt Direction, that way where it meets with the leaſt Reſiſtance, and thereby receives a new Direction, which likewiſe will again be ſoon changed by the ſame Cauſes.

And thus we find a vaſt Diverſity in the Circumſtances of Motion, meerly from a Diverſity of the Figures of moving Bodies; but when we come to conſider what the concurrent Varieties both of Figures and Magnitudes can perform, the Determinations and Effects of their Motions will be found almoſt infinitely various, and ſurprize us to think what a multiplicity of Productions or Effects are deducible from ſo few Principles. For whatſoever Vertues or Affections we find in any Bodies, after what manner ſoever they affect our Senſes, or ſeem to operate upon one another, it muſt be by the different Modifications of the Figures, Bulks, and Motions of their component Parts. And without an Impulſe, either by mediate or immediate Contact, ſufficient to excite a Motion or ſome Change from their former Poſitions, it is very manifeſt that two Bodies cannot have any Effect or Influence upon one another; but this Motion we likewiſe find is influenced by the Figures and Magnitudes of the moving Bodies; and therefore muſt it neceſſarily follow that whatever Qualities or Vertues any Bodies are endew'd with, or whatſoever Appearances they exhibit, they muſt originally flow from theſe two primary and eſſential Properties of Matter, Figure and Magnitude; and conſequently whatſoever Notions we form in our Minds concerning the Principles of mixed Bodies, whether we ſuppoſe them altogether ſimple and incompounded Particles of Matter, or little Cluſters generated from the Coalitions of thoſe primary Particles; yet as to their Capacities and Affections in the Compoſitions of Bodies it is all one, ſeeing they cannot be endew'd with any other than what they derive from their proper Magnitudes and Figures.

From this it is a very natural Conſequence, that to know the Properties, Vertues, or Qualities of any Body or Parcel of Matter whatſoever, that is, to know what that Body is able to do upon another, or how far to change it, it is abſolutely neceſſary firſt to be acquainted with the Bulks, Figures, and Motions of its ſeveral Parts; for when this is known, then the Conſequences of their Impulſes upon the other will alſo be with Eaſe determined. Thus as I am certain that the conſtituent Parts of a fluid Body muſt be ſo far round, and admit of ſuch ſmall Contacts, as eaſily to roll upon one another, without any Reſiſtance of Angles or Coheſion of Parts; ſo I am certain that if any foreign Matter, or ſuch Parts of any other Body, as will both by their Fitneſs to cohere with the Parts of the Fluid, join with them, and by their Angles prevent their Flux one over another; If any ſuch Matter, I ſay, hath Force enough given it to divide the Parts of the Fluid, and mix with it, it cannot but immediately take away its Fluidity, and render it hard and conſiſtent. And thus it is when there is ſuch a ſet of Particles ſupplied to the Air, with Weight and Force enough to divide and mix with the Particles of Water, that they immediately fix it, and from a yielding flowing Body, change it into a brittle conſiſtent one.

Thus alſo it is manifeſt, that when we ſee any Metal fluxed by Fire, it is brought about by mixing a number of Particles with it, which by their wonderful Smalneſs and Rapidity of Motion, are able to inſinuate themſelves between all the Parts of the Metal, and divide their Contacts, whereby they will ſlide upon and roll over one another, as it is common to the conſtituent Parts of any Fluid. But whereas theſe Parts which were ſupplied from the Fire, are ſo much lighter than the Parts of the Metal, they will whenever they get at the Surface fly off; and therefore as ſoon as their Supply is removed, the metalick Particles will again join, and cohere as before.

Farther likewiſe when we ſee a Thread or Chord ſhorten'd by thruſting it full of Spikes or Pins, and afterwards that wetting it with Water only will do the ſame, it is without all Diſpute that the conſtituent Parts of the Water act alſo as ſo many little Wedges, which by their Number make up what is wanting in Bulk, and by their prodigious Smalneſs require but a very weak Motion to carry them in between the component *Fibrillæ*, and diſtract them, whereby they become equivalent to any other given Force, and are ſufficient thereby to raiſe as great a weight, that ſhall be tied to hinder the Chords Contraction.

And thus by a multitude of Inſtances may it be demonſtrated that in all our Knowledge of material Subſtances, we are carried on by the ſame Steps, and that we are obliged all the way to picture them in our Minds, and keep in view the Figures, Magnitudes, and Conditions of Motion of whatſoever is under our preſent Enquiry; and to find out their Vertues and Properties, with regard to their Operations either upon our Senſes or upon one another, juſt in the ſame manner as we came to trace out the

Truth of the above-mentioned Propoſition, that *The three Angles of any Triangle are equal to two right ones.* And to this purpoſe in thoſe greater Bodies or Collections of Matter, which Artificers contrive and put together for the making any particular Machine; in order to know the Powers of that Machine, and what it will do, it is abſolutely neceſſary to learn both the exact Shapes of the ſeveral Parts, and alſo to underſtand the Reaſons of their Poſitions to one another, and the Powers by which upon that Account they have of Motion, and of anſwering all the Purpoſes of the Contriver.

Now from theſe Conſiderations, and the Aſſiſtances we have from our Senſes, in meaſuring and computing the Figures, Magnitudes, and Celerities of the ſeveral Inſtruments, it is, that we come by a ſet of Rules or Laws whereby always to determine all the Circumſtances and Conditions of Motion in any Body or Machine whatſoever; ſo that if any of the Conditions are known, the other alſo may be found out; as for Inſtance, the Bulks, that is, the Quantities of Matter, (ſuppoſing their Figures the ſame) of two moving Bodies being known, and their Celerities, their *Momenta* or Percuſſions may alſo be known by conſidering them as Rectangles under their Bulks and Celerities; alſo if their Bulks are the ſame, their *Momenta* will be as their Velocities; and if their Velocities are equal, their *Momenta* will be as their Bulks; and likewiſe if their Percuſſions are as their Magnitudes, their Velocities muſt be equal. And thus from any of the known Conditions of Motion, with the utmoſt Certainty may the other alſo, before unknown, be demonſtrated; the Rules by which we are enabled to do this being grounded upon the ſame Evidences as our Knowledge even of the Exiſtence of the Inſtruments, when we ſee and handle them.

Wherefore, (as it hath already been obſerved) if Matter howſoever modified, cannot move it ſelf, and there cannot be any Change brought about in it without Motion, and if that Motion is under the Influences of theſe Cauſes, and determinable only by ſuch Rules; then it is moſt certain, that whenſoever our Enquiries are engaged about the Powers and Vertues of the moſt minute and unheeded Compoſitions of Matter whatſoever, that, I ſay, we are to be guided only by thoſe very Rules, by which we are enabled to determine the Powers of the moſt bulky and conſpicuous Bodies. And it is a cloſe Application and Adherence to theſe Guides, in Phyſical Searches, that is called *Mechanical* Reaſoning; and ſo far, as any of the Conditions of Motion can be diſcovered, ſufficient to demonſtrate by thoſe Laws, thoſe that are unknown, is juſtly called *Mechanical Knowledge.* And thus as the Logick of the Schools furniſhes us with Rules, whereby to diſtinguiſh thoſe Ideas we take in by Reflection, and are meerly ſpeculative of incorporeal Beings; and teaches us, by a careful Attention to their Agreement or Diſagreement, to advance and prove ſeveral Propoſitions concerning them; ſo are thoſe Laws of Motion which we are ſupplied with from *Mechanicks* (if I may ſo term it) a *material Logick*, by which, according to our peculiar Make and the very Neceſſity of our Beings, we are carried on from our firſt Notices of Matter, to the utmoſt Extent of our Knowledge about corporeal Things; that is, as our firſt Notices of Bodies are from our ſeeing and feeling them, ſo thoſe Laws by which we are conducted in the moſt diſtant Searches about them, are all the way ſupported by the Evidences of thoſe Senſes. And upon this Account it is, that Phyſical Knowledge is aſſiſted by picturing and drawing to view the Figures and Dimenſions of thoſe Inſtruments or Agents that are under Conſideration, whereby their Powers and Efficacies are the better determined and demonſtrated: And this it is that ſometimes occaſions a Neceſſity, or at leaſt makes very uſeful thoſe Diagrams in Phyſical Books, which are apt to move either the Contempt or Laughter of thoſe conceited People, who meerly for want of Acquaintance with themſelves, and the Powers and Capacities of their own Mind, are, juſt as their Blood happens to circulate, either *Enthuſiaſts* or *Scepticks*.

Having thus endeavoured to inculcate a true Notion of *Mechanical* Knowledge, and to prove it the only way by which we can know any thing of the Nature and Properties of Bodies; it might be of Service alſo to expoſe the common Prepoſeſſions about *Subſtantial Forms*, *Privations*, *occult Qualities*, *Sympathies*, *Antipathies*, *Nature's Abhorrence of a Vacuum*, and ſuch like deluſory and imaginary Exiſtences, which have no manner of Foundation in Nature, and are of no other Uſe than to puzzle an Enquirer into Truth, and to ſhew the Subtilty and Cunning of their Inventors. But this would be of too great a Length; I ſhall therefore take no farther notice than of what may be underſtood by *Form*, and by *Quality*, theſe Terms being moſt made uſe of.

Every Body exiſts under ſome Form or other; but then that Form is nothing elſe than a diſtinguiſhing Modification of the common Matter of which that Body is compoſed, ſo as clearly to give it a peculiar manner of Exiſtence; that is, it is an Aggregate or Convention of as many particular Qualities, as ſerve to denominate a Body of ſuch a Nature, and to give it ſuch a Name, and to diſtinguiſh it from other Bodies. As the Qualities of the greateſt *ſpecifick Weight*, *Ductility*, *Diſſolvibility* in *Aqua Regis*, and not in *Aqua Fortis*, and *Yellowneſs* of Colour, make up the Form of that Metal which is called *Gold*.

So that it is not any kind of ſubſtantial Soul, or Subſtance diſtinct from Matter, but only ſuch a proper and agreeable Convention of Accidents, as by common Conſent are reputed ſufficient to make any Portion of univerſal Matter belong to this or that determinate *Genus* or *Species* of natural Bodies. They have much therefore been led out of the way, who have been taught, that the ſeveral *Species* of Bodies are owing to any internal *ſubſtantial Forms*, diſtinct from the peculiar Modifications above-mentioned.

What is to be underſtood by the Word Quality, is ſo admirably well explained by that great Maſter of Reaſon and good Senſe, Mr. *Locke*, that what I ſhall here inſert will be chiefly a Tranſcription from him: In which if any thing ſeems a Repetition of what has been ſaid before, I deſire it to be excuſed, becauſe I am unwilling to cite any thing imperfectly from ſo excellent a Perſon.

Whatſoever the Mind perceives in it ſelf, or is the immediate Object of Perception, Thought, or Underſtanding, is called an *Idea*; and the Power to produce an *Idea* in the Mind, is called a *Quality* in the Subject wherein that Power is. Thus a *Snow-Ball* having the Power to produce in us the *Ideas* of *White*, *Cold*, and *Round*; the Powers to produce thoſe *Ideas* in us, as they are in the *Snow-Ball*, are called *Qualities*; but as they are Senſations or Perceptions in the Underſtanding, they are *Ideas*.

Qualities thus conſidered, are either ſuch as are utterly inſeparable from a Body, under what Mode of Exiſtence ſoever it be; ſuch as it conſtantly keeps through all the Changes and Alterations it goes through from any external Force whatſoever; and ſuch as Senſe conſtantly finds in every Particle of Matter which has Bulk enough to be perceived, or the Mind finds as neceſſarily inſeparable when leſs, than to make it ſelf ſingly taken notice of by the Senſes: Of this kind are Solidity, Extenſion, and Figure, which are properly call'd original or primary Qualities: or elſe ſuch as in truth are nothing themſelves, but have a Power to produce various Senſations in us by means of the different Diſpoſitions or Modifications of theſe primary Qualities, that is, by the Bulks, Textures, and Motions of the inſenſible Parts of thoſe Bodies that are ſaid to be endow'd with them, as Colours, Sounds, Taſtes, and the like; and theſe may be called ſecondary Qualities.

It will be farther uſeful to conſider, by what means it is that we come by the Ideas of the Qualities of Bodies in our Minds, which upon Enquiry will be found impoſſible any other way than by ſome Impulſe made upon the Senſes by thoſe Bodies, either immediately or mediately. For a Portion of Matter under whatſoever kind of Modification, cannot any ways affect another, tho' never ſo near it, but by Contact; if therefore external Objects are not united to our Minds, when they produce Ideas in them, 'tis evident that ſome Motion muſt be continued by the Nerves and Spirits from that Part firſt affected by the Object, to the Seat of Senſation, there to excite thoſe particular Ideas; and likewiſe that ſince Bodies do affect, or that the Qualities of Bodies are at a Diſtance perceivable by the Senſes, 'tis neceſſary that thoſe Impreſſions be made either by the Mediation of ſome other Bodies which interpoſe, or by the Motion of inſenſible Particles ariſing from the Bodies themſelves, and affecting the ſenſitory Organs. From Sight and Touch we come by the Ideas of the eſſential and primary Qualities of Bodies, Solidity, Extenſion, *&c.* which Qualities, when not perceived or taken notice of by the Senſes, are as abſolutely and as neceſſarily in thoſe

Bodies, as when under ſuch Perceptions: But the Ideas of ſecondary or accidental Qualities, depending upon particular Modifications, and ariſing from the Operation of the inſenſible Particles of Bodies upon the Senſes, whatever may by miſtake be attributed to them, are in truth nothing in the Objects themſelves, but entirely depend upon the various Diſpoſitions of the primary and eſſential Properties of Matter, being nothing elſe than Powers in Bodies of producing thoſe Senſations in us; for what is Sweet, Red, or Heat in Idea, is nothing but the Bulks, Figures, and Motions of the inſenſible Parts of thoſe Bodies, which are ſaid to be Sweet, Red, or Warm.

Flame is ſaid to be Hot and Light; Snow White and Cold, and *Manna* White and Sweet, from the Ideas they produce in us; which Qualities are through Miſtake thought to be the ſame in thoſe Bodies as their Ideas are in us: and yet he that will conſider that the ſame Fire which at a Diſtance produces the Senſation of Warmth, does upon a nearer Approach produce a very different one, which is that of Pain; will ſcarce be brought to affirm that Pain is actually in Fire, becauſe it gave him ſuch a Senſation, although perhaps before he believed Warmth to be in it for the ſame Reaſon. A Perſon will be very ready to affirm, that Whiteneſs and Coldneſs are in Snow, but will not allow Pain to be ſo; and yet Snow will produce all thoſe Ideas in us, and all by the ſame means, to wit, by the Bulks, Figures, and Motions of its inſenſible, ſolid, and conſiſtent Parts. Now the particular Bulks, Figures, and Motions of Fire or Snow are actually in them, whether the Senſes perceive them or not; and therefore they very properly may be called eſſential and real Qualities, becauſe they really and neceſſarily exiſt in thoſe Bodies; but Light, Heat, Whiteneſs,

neſs, or Coldneſs, are no more really in them than Sickneſs or Pain is in *Manna.*

A Piece of *Manna* of a ſenſible Bulk, has the Power to produce in us the Idea of a round or a ſquare Figure; and by being moved from one Place to another, the Idea of Motion. This Idea of Motion repreſents it, as it really is in the moving *Manna*; a Circle, or Square, or any other mathematical Figure, is the ſame whether in Idea or Exiſtence; and thus both Motion and Figure are really in the *Manna*, whether we take notice of them or not. But beſides theſe Properties, *Manna* has ſometimes a Power to produce the Senſations of Sickneſs and Pain; yet Sickneſs and Pain are not in the *Manna*, but only Effects of its Operations upon us, and are no where when we do not feel them: This every one will readily agree to; and yet it is hard to be brought to think, that Sweetneſs and Whiteneſs are not really in *Manna*, which are but the Effects of its Operations, by the Motion, Size, and Figures of its Particles on the Eyes and Palate; as Pain and Sickneſs are nothing but the Effects of its Operations on the Stomach and Guts, by the ſame means.

That all the Qualities or Vertues of Bodies depend only on the different Modifications of thoſe eſſential and primary Qualities before-mentioned, may be farther made appear by a great number of Inſtances. That a Tincture of Red Roſes may only by a few Drops of Spirit of Vitriol be very much heighten'd, or by Spirit of Sal Armoniack changed Green. That the Purging Quality of Rhubarb may by toaſting at the Fire, be entirely deſtroy'd, and the Rhubarb render'd aſtringent; and ſeveral other Alterations of the like Nature are known by common Experience. As likewiſe that an Almond from a clear white Colour may be alter'd into a dirty one, and from a ſweet pleaſant Taſte into an oily one; and all only by the beating of a Peſtle; which cannot but put it beyond doubt that theſe ſecondary Qualities of Bodies do entirely depend on the particular Modifications of the former; and that beſides Solidity, Bulk, Figure, Extenſion, Number and Motion, all the other Affections of Bodies, whereby we range them into ſeveral Species or Kinds, and diſtinguiſh them from one another, are nothing elſe but ſeveral Powers in them, reſulting from and depending upon the various Diſpoſitions and Modifications of thoſe ptimary and eſſential Qualities; whereby they are fitted, either by immediately operating upon our Bodies, to produce ſeveral different Ideas in us; or elſe by operating on other Bodies, ſo to change their primary Qualities, as to render them capable of producing in us Ideas different from what before they did. As when the Sun melts or blanches Wax, or Fire renders Lead or any other Metal fluid, that was before hard and conſiſtent; the different Appearance, which the Wax ſo melted or blanch'd, and the Metal ſo melted do exhibit, are not from any real Qualities in the Sun or Fire, but only Powers in them, ſo to alter the Textures of thoſe Bodies as to appear very different from what they did before: and therefore as the different Appearances which the melted or alter'd Bodies do exhibit, as indeed alſo all other Bodies, may properly be called ſecondary Qualities immediately perceivable, ſo the Powers one Body has of changing another, that is, by altering the preſent Form in which it exiſts, as the Sun Wax, or Fire the Metal, from a conſiſtent into a fluid State, may be termed not improperly Qualities mediately perceivable.

The *Qualities* and Vertues of all material Subſtances thus appearing to operate upon us, or upon other Bodies, either by their immediate Contact, or by their Impulſe upon interpoſing Bodies; and it being evident from Experience, that ſeveral do affect others at a Diſtance by the Emiſſion of ſubtile *Effluvia*, as odoriferous Bodies; and theſe being corporeal, their Motions and Affections are determinable by the ſame Laws and Conditions, as of thoſe of the moſt bulky and ſenſible whatſoever. As ſuppoſe A, to be a Body from whence any Quality exerts it ſelf round about, (the Air, or *Medium* through which it paſſes being in no Flux) according to the right Lines A e, A f, A G, *&c.* the Efficacy of the Quality, whether it be Heat, Cold, or Odour, will be at the ſame Diſtances equal, and as the Thickneſs of the Rays or exhaling Particles; but when the Rays of the inner Circle, or ſpherical Superficies, b c d H, come to be farther extended, according to the ſuppoſed Direction in right Lines, to the other Spherical Surface, e f G K, they will be much leſs thick than before, that is, the Qualities of the Body A will be much more remitted or abated at the Diſtances e f G than at b c d; and ſuch Remiſſion or Abatement will be in a duplicate *Ratio* of the Diſtance from the Center of Radiation, or the Qualities Exertion; or they will be remitted in Proportion reciprocally as the Spaces they take up: That is, if the outer Surface be double of the inner, the Rays there will be but half as thick. But ſince Spherical Surfaces are as the Squares of their *Radii*, therefore the Efficacy of the Quality in the inner Surface will be to that of the outer, as the Square of A e is to the Square of A b; or, which in other Words is the ſame, the Remiſſion of the Efficacy of the Quality in the outer Superficies will be to that of the inner, as the Square of the Radius of the outer exceeds the inner.

By the ſame Methods are determinable the Efficacies of all corporeal Qualities, howſoever influenc'd or affected by circumambient Bodies, becauſe, as was ſaid before, the moſt ſubtile *Effluvia* that can poſſibly exhale or be emitted from any material Subſtances, as they ſtill remain ſomething corporeal; their Motions, Occurſions, and all Alterations occaſioned by them, muſt neceſſarily be by ſuch Laws and Conditions, as the moſt bulky Bodies of the Univerſe are govern'd by. From all which, I ſay, it appears very plain, that the Properties and Vertues of all Bodies whatſoever are knowable only upon Principles whoſe Evidences ariſe from Senſe; but that their Operations and Affections depend upon, and are to be accounted for from the Influences of immaterial Agents, called Forms, Qualities, Souls, or any other Name whatſoever, is only a meer Chimæra, a Creature of the Imagination, and without any manner of Foundation in Nature.

Having thus explained what is to be underſtood by mechanical Knowledge, and proved that by the ſame Guides and Aſſiſtances all that we know of material Subſtances is taken in; it follows next to ſhew, that a human Body alſo muſt be conſidered in the ſame Light. For notwithſtanding the Excellence of its Compoſure, and the wonderful Variety and Fineneſs of its Parts, upon which ſo many extol it, and ſeem to raiſe it to a ſtrange Preheminence above the reſt of the Creation; notwithſtanding all this, I ſay, when it comes to be conſidered with regard to its Structure, and the Mechaniſm by which the Offices of its ſeveral Parts are carried on, in order to find out the beſt Methods, either of continuing thoſe Functions perfect, or of regulating them when diſordered, he will find himſelf under a Neceſſity of uſing it no better than any other Part of the material World of much viler Account: Becauſe herein he cannot come at any manner of Certainty, without taking it to Pieces like any other Machine, and conſidering all the Parts of the Movement as ſo many Springs, Wheels, and the like, which by

Virtue of their particular Figures, Magnitudes and Contextures, are enabled to carry on their ſeveral Motions.

It has ſomething in it that would move ones Laughter as well as Amazement, to reflect upon the Extravagancies of ſome ſubtile crafty Heads, who, to account for the Operations of a human Body, have abſtracted and ſpiritualized upon it (if it may be ſo termed) ſo far as to aſſign every particular Part ſome ſort of Intelligence or Soul, which rules and manages it in the Performance of its Offices. This wonderful Contrivance indeed not only ſhews abundance of Penetration in the Authors of it, but alſo ſaves a great deal of Trouble in the manner of its Attainment; for by this we come at once to know that the *Stomach* digeſts, that the *Liver* ſanguifies, and that the *Brain* makes Spirits, becauſe theſe Parts have ſuch Faculties preſiding over them; which, as long as they are pleaſed, make one digeſt, another ſanguify, and ſo on, as the Occaſions of the Conſtitution require. And upon this means likewiſe there is laid open a direct and pleaſant Road to the Art of Healing, when any one Part happens to be diſtemper'd. For to this there is no more required, than to apply ſuch Remedies, as the indiſpoſed Faculty delights in, and will be comforted and ſtrengthened by. And of this kind, we never fail of being plentifully ſtored, by the indefatigable Searches and Diſcoveries of ſuch as have been converſant with the Planets, and are verſed in the occult Sciences. So that every Medicine given to rectify the Diſorders of any particular Part, ſeems only to be a kind of Sacrifice to the preſiding Deity of that Part.

And this is very like to be the Reaſon how Perſons of warm Imaginations and great Devotion, ſo very eaſily come to be Phyſicians, becauſe the Merit of the Sacrifice is ſo much enhanſed by the Qualifications of the Perſons who offers it.

But that extraordinary Chymiſt *Van Helmont* has carried this way of Reaſoning ſtill much farther and to make the Work ſhort, has ſet but one general Deity over the whole, which he calls the *Archæus*; and by this he has not only ſhewed a commendable Zeal againſt Pollytheiſm, and thrown out of the human Body all thoſe *Pagan* Deities, which had their Riſe only from the Invention of a corrupted Generation, but has alſo laid open a ſtill much nearer way to the Art of Healing; if any one could be ſo happy to find out that particular Oblation, which his *Archæus* would vouchſafe to accept of; but this is what I think yet remains undiſcovered, or at leaſt is reſerved as a religious Secret amongſt the Adepts of this Philoſophy. But upon this View, *viz.* to find out ſomething for this great Purpoſe, it is that the *Diſpenſateries* are ſtuffed with *Pollychreſton's*, *Panpharmacon's* and *Panacæa's*, and I know not how many univerſal Medicines. For let the Diſtemper be what it will, or ſeated in whatſoever Part; yet as it has its Riſe from ſome Diſturbance given to the *Archæus*, ſo whatſoever can be found to quiet and appeaſe this preſiding Power, will alſo bring about a Cure, by reſtoring it to good Temper, and bringing it thereby to govern and carry on all the ſeveral Functions as before.

But to return from theſe abſtruſe Speculations about Intelligences, and I know not what imaginary Beings, into the Road of common Thinking, where the groſs Senſes of Seeing and Feeling are our only Informers and Guides: A human Body, I ſay, ſo far as it is a Compoſition of the ſame Matter with that of all other corporeal Beings, its Structure and Operations cannot be enquired into and accounted for, but upon the ſame Method of Procedure as we are under a Neceſſity of uſing with all other Portions of Matter. For even the *animal Spirits* themſelves, concerning which there are ſo many fine things ſaid, if by them is meant nothing but what is corporeal, their Natures and Efficacies are to be enquired into upon the very ſame Grounds, and all their Properties are derived only from the ſame Cauſes as thoſe of much groſſer Bodies, which is the particular Modifications of their Figures, Extenſions, and Motions: And upon this Foot the ſeveral Parts of a human Body are to be enquired into, and examined as thoſe of any other Machine; and it is neceſſary to be informed of the Figures and Contextures, firſt of the more principal, and then of the more ſubordinate or under Parts, and likewiſe of all the Conditions and Requiſites of their Motions: and when thus much is known, it will be a Task of no great Difficulty to learn by what Inſtruments and Means it will be beſt to make uſe of duly to carry on thoſe Motions, or to regulate them when diſordered.

And to this Purpoſe, notwithſtanding the wonderful Variety, both in the Number and Structure of its ſeveral Parts, yet they are throughout the whole to be regarded as ſo many mechanical Inſtruments or Powers, all in Subordination to one another, and ſuited in ſuch a manner as to agree in the Support of the whole, and in the due carrying on all the Purpoſes of the Oeconomy; and ſeeing their Dependence upon, and Subſerviency to one another, is ſo ordered, that any one Part cannot well ſuffer without bringing a Diſorder likewiſe upon the whole, the Structure and Powers of the moſt minute Parts are, as in any curious Movement, to be known, in order to find out the propereſt Methods of regulating ſuch Diſorders.

But in all this, the firſt Steps ought to be taken from the moſt ſimple and eaſy Notices we have of it, and from them by Degrees to enter into its moſt minute Parts, in order to explicate its more remote and unheeded Properties. And to this end it firſt very naturally comes to be conſidered as a Compoſition of Solids and Fluids; the Solids being vaſcular, it is neceſſary to enquire into their Capacities, Figures, and Poſitions; the Fluids alſo being found of different Kinds, and to move with different Celerities, the Cauſes of it come to be enquired into, and the Inſtruments by which their reſpective Motions are communicated, with all the other Requiſites to ſuch a Contrivance.

Farther it appearing impoſſible that the immediate Cauſe of the Fluids Circulations ſhould be in themſelves; and finding alſo that as they paſs out of one Veſſel into another, they undergo conſiderable Changes, it comes then to be known by what particular Mechaniſm it is in the Solids that they are enabled to give to the Fluids ſuch Motions, and occaſion ſuch Changes upon them as they paſs them from one Part to another: And herein ſince we are converſant altogether with corporeal Agents, we ſhall be obliged, as in all ſuch Caſes, to go upon ſenſible Evidences; and therefore muſt conſider the Solids as certain mechanical Powers ſuited for thoſe Ends, or Inſtruments ſubſerving thereunto; and hence they are divided into, and looked upon, according to the Figure and Uſe of each Part, as Wheels, Pullies, Wedges, Leavers, Screws, Chords, Canals, Ciſterns, Sieves, or Strainers, and the like.

The Conſequences likewiſe of the Motions of the Solids upon the Fluids muſt be conſidered, which is found continually to make ſome Change upon them, either as they paſs them in Part into other Veſſels, in order to ſupply a Juice of a different Nature, for ſome farther Uſe, or elſe by convenient Outlets to expel them quite our of the Body. Upon on themſelves alſo they cannot but have this Conſequence of breaking finer and waſting that Liquor, with which it is neceſſary that they ſhould continually be moiſtened, as in the Movement of any other Machine. Upon both theſe Accounts then there will continually be ſome Loſs or Waſte of Subſtance, which it will be neceſſary to recruit by freſh Supplies in Proportion to what is ſo waſted; of what kinds alſo theſe ought to be, muſt be known, and the means by which they are beſt fitted and prepared for the ſeveral Occaſions of the Conſtitution.

Upon this View there appears to be two general Seats of a Diſtemper, either the Solids or the Fluids; when it is found therefore to have its Riſe in a general Diſorder in the Solids, by their being too ſlack, or too ſtrait, or the like, then ſuch Remedies may be applied as are known to be effectual in the removal of that Diſorder; and when by the ſame means, it is known how any partial Diſorder is brought about, a Perſon acquainted with their Make and Subordination to one another, will ſoon find out the moſt proper means of Cure. From any general Diſorders likewiſe of the Fluids, as their being too thin or too viſcid, and the like, and an underſtanding in the means by which to oppoſe them, a Perſon gradually enters into all their partial Diſorders. and with equal Certainty learns how to apply proper Remedies.

Now all theſe Matters coming under our Notices only by the Information of our Senſes, and in all our Knowledge about them being conducted only by mechanical Rules, or the demonſtrative Laws of Motion, no farther than they will carry us can we know any thing herein; but ſo far as can be proceeded upon thoſe Principles, will it be attended with Certainty, and no other way is it poſſible to arrive to hereupon any uſeful ſatisfactory Knowledge.

Thus when it is known by what particular Contrivance and Mechaniſm in the Heart and Arteries it is that the Blood is thrown forward, and continued throughout its whole Circuit, it likewiſe is certainly known, either how to diminiſh or increaſe its Motion, and that a great many ways and with equal Certainty; for herein cannot any thing be more fully demonſtrated, than that adding to the contractile Force of the Veſſels, is the ſame, as diminiſhing the Blood's Reſiſtance, either by a Subſtraction of its Quantity, or by any means encreaſing its Fluidity; or alſo that by weakening the contractile Force, will the ſame enſue as upon an Augmentation of the Quantity of Blood, or by an Encreaſe of its Viſcidity.

Farther alſo when it is known that the Diſcharges or Secretions made from the Blood, are altered and determined by the Conditions of the Blood's Motion; ſo may a Perſon by the ſame means know what Methods ought to be taken to influence thoſe Secretions, and alſo be certain of their Conſequences.

In the whole then ſo far as a Perſon can conſider a human Body as a Machine, and by the known Laws of Motion demonſtrate the Powers and Operations of its ſeveral Parts, ſo far may be with Certainty known how to manage it, in order to produce any Change therein; that is, if he has proper Inſtruments, and upon the ſame Principles underſtands their Efficacy and Manner of Application. A great number indeed of the Inſtruments by which it is either injured or mended, are ſo ſmall as to render it impoſſible with ſtrict Certainty to determine their Efficacies, becauſe it is not poſſible exactly to aſſign their Bulk, Figures, and Motions; and therefore cannot their manner of working upon the Animal Fluids be poſitively known. The Seat of the

Diſturbance alſo may ſometimes lye ſo many Stages from the firſt taking in of a Medicine, that if at its firſt Entrance into the Stomach, its Properties were never ſo certainly known, yet by the Actions of the ſeveral Parts upon it which it paſſes thorough, and the different Mixtures and Strainers it meets with by that time it gets to the Scene of Action, its firſt Properties may be quite deſtroyed, and new ones acquired, the Efficacy of which after ſo many Changes can never be determined; and this may be the Reaſon why the *Gout*, and ſome other Chronick Diſtempers remain the *Opprobria Medicinæ.* But notwithſtanding all this, I ſay, a Perſon that truly enters into the Mechaniſm of the Body, will ſeldom ſtand in need of ſuch Helps, eſpecially in Chronick Caſes; becauſe he will often find a much nearer way to the Seat of the Diſtemper, than by the Stomach and Guts, and be able to do much more by *Exerciſe*, *Bathing*, the *Fleſh-Bruſh*, and *Topicks*, than by long Courſes of the moſt celebrated *Alteratives* or *Sweetners.* And thus when there are Symptoms of a præter-natural Acidity in any of the Juices, although I cannot be certain how much *Crabs Eyes* will deſtroy it, or in how long time, or whether it can ever be done by it or no; yet if the Circumſtances and Condition of the Patient will upon other Accounts admit of it, a Perſon may with the utmoſt Certainty depend upon overcoming it by any means that ſtrengthen and encreaſe the Vibrations of the Solids, which Exerciſes or Cold Bathing cannot fail to do; for by this the Motions of the Fluids muſt be encreaſed, by which ſuch Particles as were before pointed, and gave that Acidity to them, will have by Degrees their *Spicula* broke, and their Angles ſtruck off, and thereby loſe that Property.

In any other Caſe likewiſe where there is only a partial Diſorder, ſuppoſe of the *Liver*, or any other of the *Viſcera*, according to the Symptoms and State of the Secretions, it may be certainly known by one who underſtands the Make and Office of that Part, whether it be from too lax or ſtrait a Tone in the Part it ſelf, or from too great or too ſparing a Supply of Fluids, or from the Diſtemperature of ſome neighbouring Part with which it communicates; ſuch means therefore a Perſon will not fail to find out by which with Certainty to remedy that Diſorder, if it falls not in with ſome Contra-Indication; and then only it is that a Cure cannot be effected. Thus if from a preternatural Viſcidity of Blood upon too lax a State of the Solids, ariſes a Difficulty of Breathing, or what is commonly called a *Dyſpnæa*, there is nothing more certain than that a Subſtraction from the Quantity of Blood will relieve this Complaint: But becauſe the Solids are already ſuppoſed to be weak, if at the ſame time ſome *Stimulus* is not given to them, or by ſome means or other their Contractions encreaſed, the remaining Blood cannot give them ſo much Spirits as a greater Quantity; and therefore will their Contractions grow weaker, conſequently very ſoon after the Blood will grow more viſcid, and the old Complaints return with Aggravation; and therefore is not its Cure to be attempted by Bleeding alone, becauſe it may ſo prove injurious, and even in Caſes where there is no Poſſibility of doing without it.

But there is ſomething farther, beſides Phyſical Agents, which has to do in a human Body, and which by certain Experience is able to bring about ſtrange Changes therein, and that is the Mind, or Soul, or Power of Thought, whatſoever it is called. Nothing is more obvious than the Diſorders which have no other manifeſt Cauſe than in the Paſſions of the Mind; and likewiſe how far the Diſpoſitions and Affections of That will go in the removal of a great many ill Habits. Herein therefore, by not being able to determine the Force and Efficacy of ſuch Agents as cannot be brought under the Notices of our Senſes, we are obliged to proceed by other Meaſures, and truſt altogether to Obſervation and Experience.

Inſomuch therefore as a human Body can be conſidered as a Machine, and ſo far as the Properties of all thoſe things with which it may be influenced, can be known upon the ſame Principles, ſo far it is attended with Certainty; for it is in it ſelf altogether impoſſible to know any thing of the Nature and Properties of it ſo far as it is a Compoſition only of ~~the ſame Matter of which all other Bodies are made~~ up of, but upon thoſe Grounds as are attended with Demonſtration, as before proved. But as for what concerns it otherwiſe, with Relation to ſuch Cauſes as cannot be brought under ſenſible Evidences, it muſt always remain doubtful, beyond what common Obſervation does aſſiſt us. Yet as moſt that comes under a Phyſician's Regard is of the former kind, ſo the utmoſt Application ought to be made to thoſe Means by which ſuch Certainty is only attainable; and there ſo very ſeldom turns up any thing of the latter kind, that a Perſon uſed to that way of Reaſoning will rarely meet with Caſes wherein he will not have ſome Footſteps to trace out by, a ſafe, if not ~~altogether an effectual Method of Cure~~; for although one cannot tell the Manner and Procedure by which any Affection of the Mind does bring about any particular Diſorder, yet by the Diſorder it ſelf, and the State of the Body under it, it may without much Difficulty be gueſſed whether it influences it, by Aſtringing, or Relaxing, or in any other particular manner modifying the Solids; whereby upon careful Obſervation they come at laſt to be conſidered as ſuch Phyſical Agents as are known to be attended with the ſame Conſequences, and therefore come to be treated in the ſame manner, either in forwarding their Advantages, or oppoſing their Diſorders.

THE CONTENTS OF THE INTRODUCTION.

Page

UPON *what Grounds* Geometry *has of late been made uſe of in the Study of Phyſick* 11

The only Means of Information about corporeal Subſtances; is by the Senſes. 12

How Sanctorius *came to ſucceed, ſo well in his Aphoriſms.* ibid.

Uncertainty in Phyſick, not from the want of ſufficient Evidences, but from the Ignorance of the proper Means of obtaining it. ibid.

The Capacities of the Mind needful to be known, before a Perſon engages in any Study. 13

The Mind fitted to conſider different Subjects, very different ways. 14

Inſtances given in three Propoſitions, *all knowable different ways.* ibid.

The particular procedure of the underſtanding upon each. 15, 16

Certainty, *either* Hyſtorical, Moral, *or* Demonſtrative, *and their different Foundations.* 17

All Propoſitions *concerning material Subſtances, of the latter kind, and depend only on ſenſible Evidences.* 18

All the properties of Matter, knowable only by the Information of the Senſes, and fully diſcovered by them, as Solidity, Extenſion, Figure; *as likewiſe thoſe Ideas which neceſſarily flow from them, as* Space, Motion, Attraction, *and the like.* 19—26

The

Page

The Properties *of* Matter, *either* Eſſential *or* Accidental; *of the* Eſſential, *ſome will not admit of Alteration, as* Solidity, *others may be varied as* Figure. 26

Theſe the materials of all knowledge in Phyſick 26

The Accidental Properties, *only different* Modifications *of the other.* 27

How Motion *is influenced by the* Figures *and* Magnitudes *of the moving Bodies.* 28, 30

The Laws *of* Motion, *neceſſary to be known.* ibid

No Body can operate upon another but by Contact. 30

To know what one can do upon another, it is firſt neceſſary to know the Bulks, Figures, *and* Motions *of its Parts.* 31

By that it is known how Water is Frozen, or how a Metal is fluxed. 32

Mechanical Knowledge *is what keeps in Veiw the* Figures *and* Bulks *of the* Bodies *under conſideration, and determines their Efficacies by the* known *Laws of* Motion. 33

It is the ſame in Phyſicks, *as the* Rules *of* Logick *in matters Speculative, and therefore is often of Service, by* Pictures *and* Diagrams *to keep diſtinctly in View, whatſoever is the Subject of the preſent Inquiry.* 34

Occult Qualities, Sympathies, *and whatſoever lets the Mind go off from the Image of ſomething Corporeal is deluſory.* 35

Subſtantial Form, *what.* 36

Qualities *of* Bodies, *explained from Mr.* Locke. ibid.

  Either Primary *aud* Secondary, *or* Eſſential *and* Accidental. 37, 39

  On what both depend. 40

  How to Determine their Efficacies from Mr. John Keil. 41

The Vertues *of all* Bodies *determinable only by the ſame Means.* 42

A

Page

A Human Body, *can be conſidered no other ways than as a Machine.* 42

The Term Faculty, *as commonly applied, expoſed.* 43

Whence Enthuſiaſts *commonly pretend to* Phyſick. ibid.

Whence the Notion of Univerſal Remedies. 44

All the Parts of an Human Body, *and even the* Animal Spirits, *have no other Properties but in common with other Bodies, and are ſubject to the ſame Laws.* 45

— *To be ſeperately conſidered as the conſtituent Parts of any Machine.* 46

— *Divided into* Solids *and* Fluids. 47

— *Their* Powers *and* Operations, *how far to be known with Certainty.* 48

The Vertues *of* Medicines *to be conſidered only as Mechanical Inſtruments, and known only by the ſame* Rules. 49

The Operations *of the* Mind *may ſo far be brought under the ſame Laws, as by their ſenſible Conſequences they have been found always attended with ſuch certain Effects.* 49, 50

It very rarely happens that a Perſon, well inſtructed in this way of Reaſoning, is at a loſs how with Certainty to influence the Conſtitution either for its Preſervation or the Regulation of its Diſorders. [illegible]

F*OR want of cloſer Attendance upon the Preſs, ſome Errors have eſcaped Correction; but as they are not ſuch but what the Reader may eaſily diſcern as he meets with them, I give my ſelf the Trouble only of Advertiſing him in the* Introduction *to put in Page* 17. *Line* 20, 21, 23, 24. L *for* E, *and* P. 41. *l.* 5. *to inſert* Fig. 7.

The Contents of the Sections and DIGRESSIONS.

Page

Sect. 1.

Of Inſenſible Perſpiration. —————— 1

Sect. 2.

Of Air and Water. —————— 75

Sect. 3.

Of Meats and Drink. —————— 111

Sect. 4.

Of Sleep and Watching. —————— 161

Sect. 5.

Of Exerciſe and Reſt. —————— 207

Sect. 6.

Of Venery. —————— 240

Sect. 7.

Of the Affections of the Mind. —————— 263

DIGR. 1. *Of Fermentation and Corruption, ſo far as they relate to the Animal Fluids* 224
Digr. 2. *Concerning Agues and their Cure, without the* Bark. 178
Digr. 3: *Concerning the Elaſticity of an Animal Fibre.* 211
Digr. 4. *Of the difference between an Inflammatory and a Nervous Feaver.*

Fig. 1.

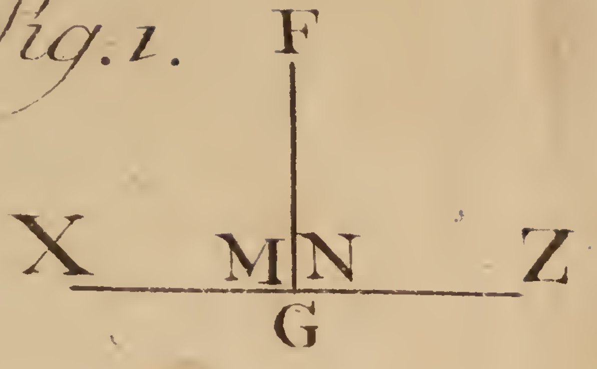


Fig. 2.

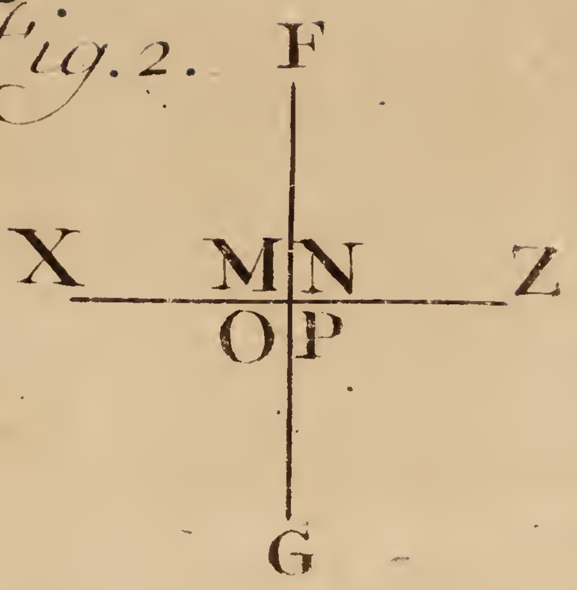


Fig. 3.

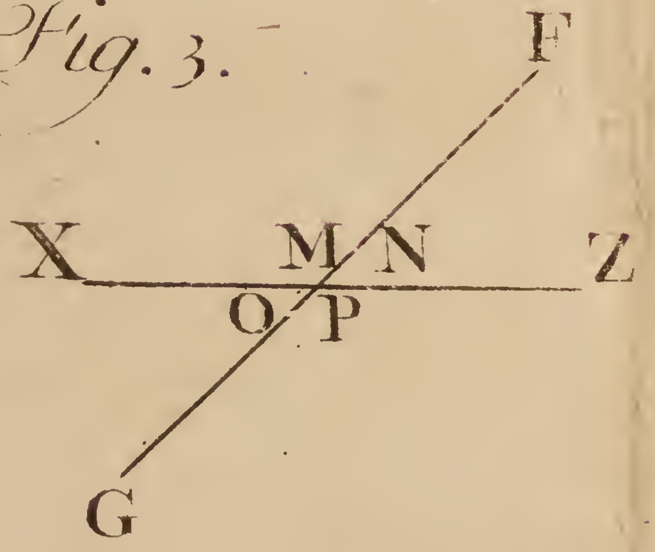


Fig. 4.

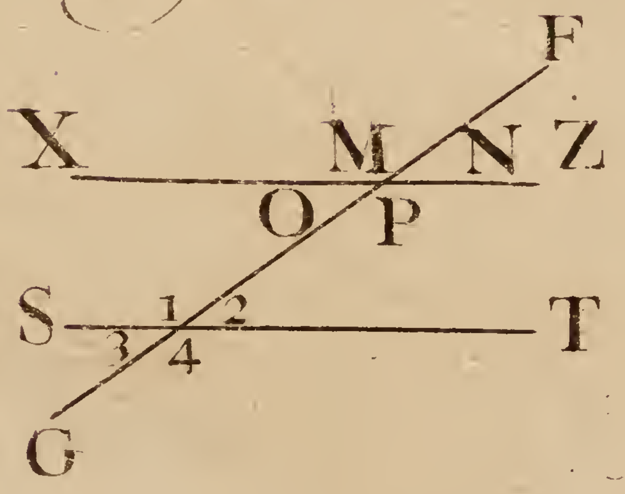


Fig. 5.

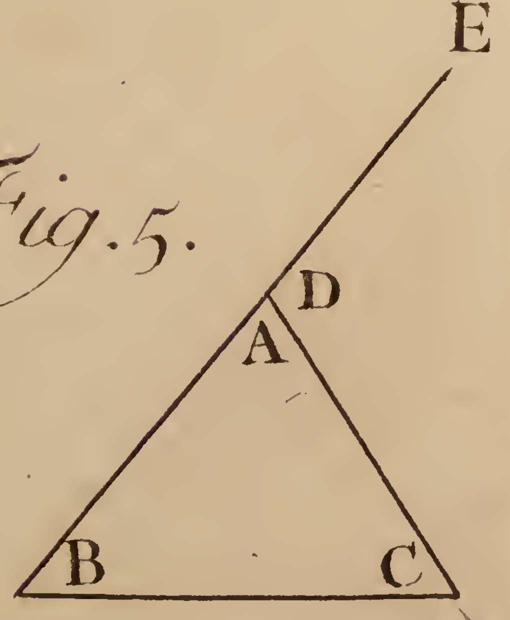


Fig. 6.

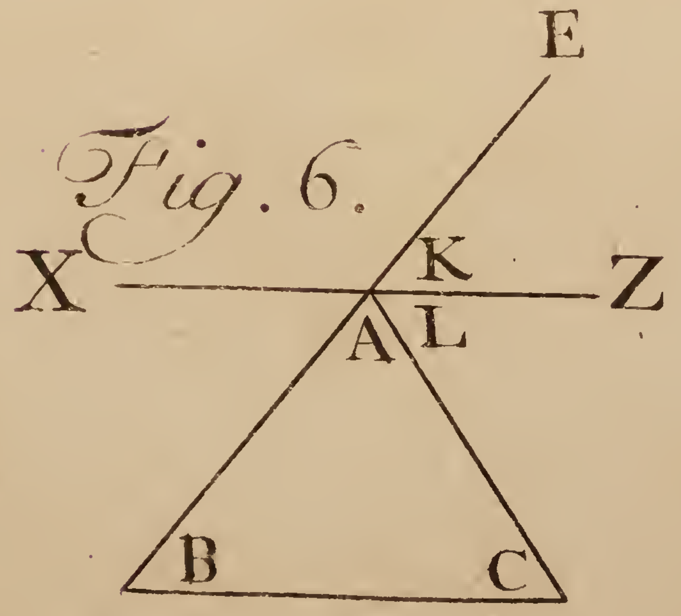


Fig. 7.

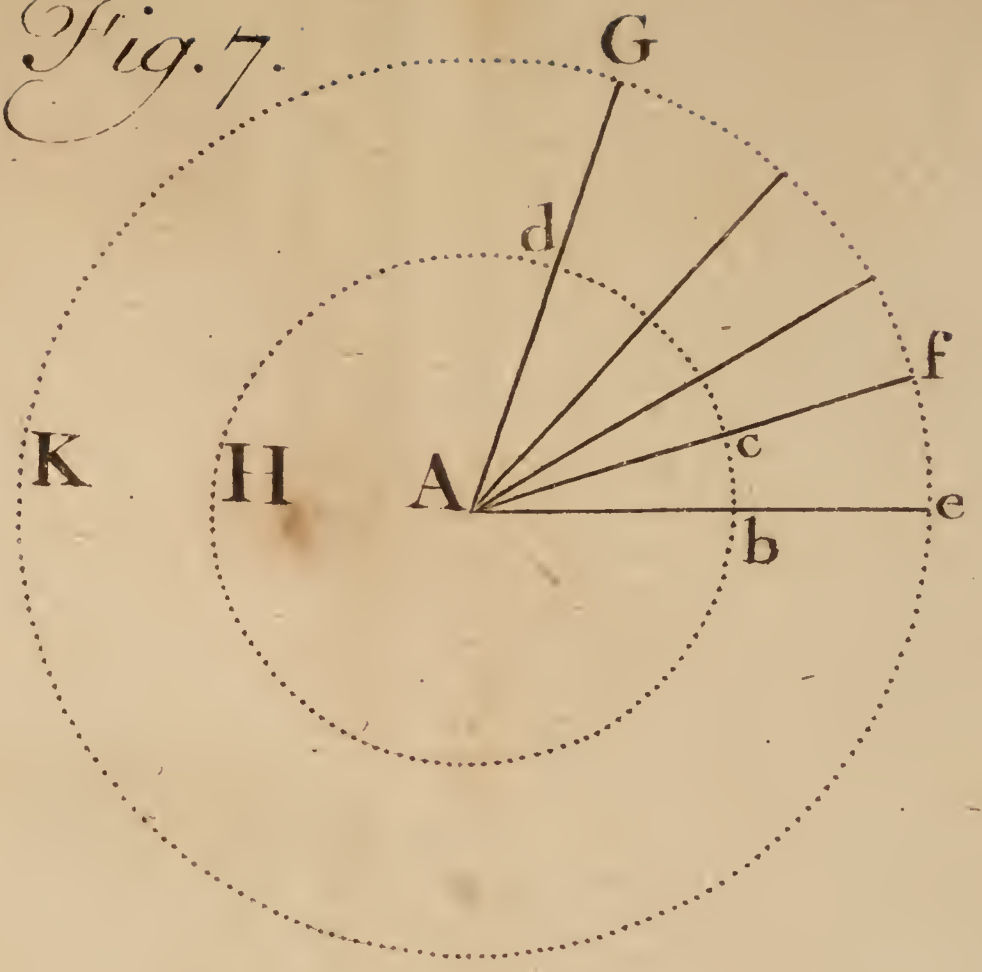


Fig. 8.

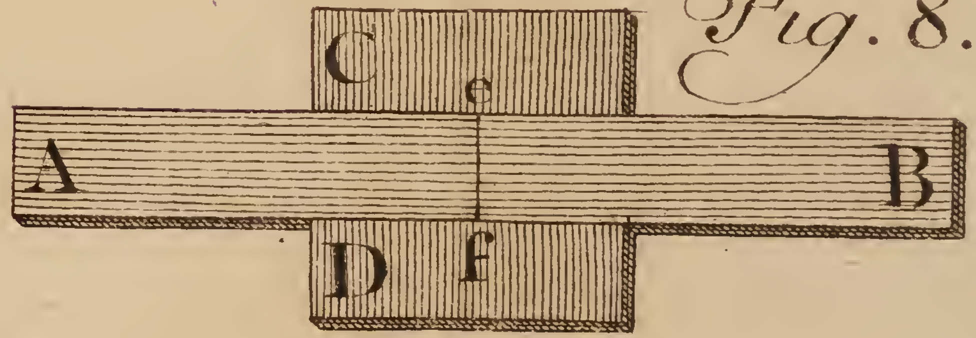


Fig. 9.

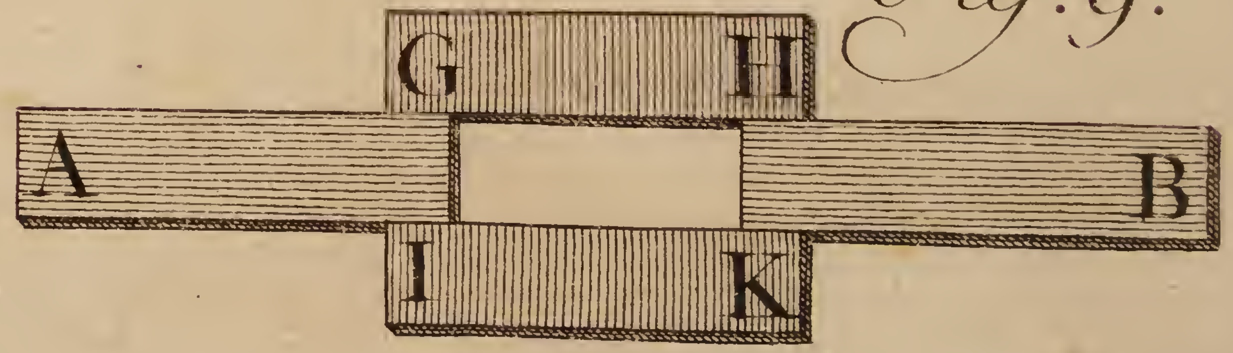


Fig. 10.

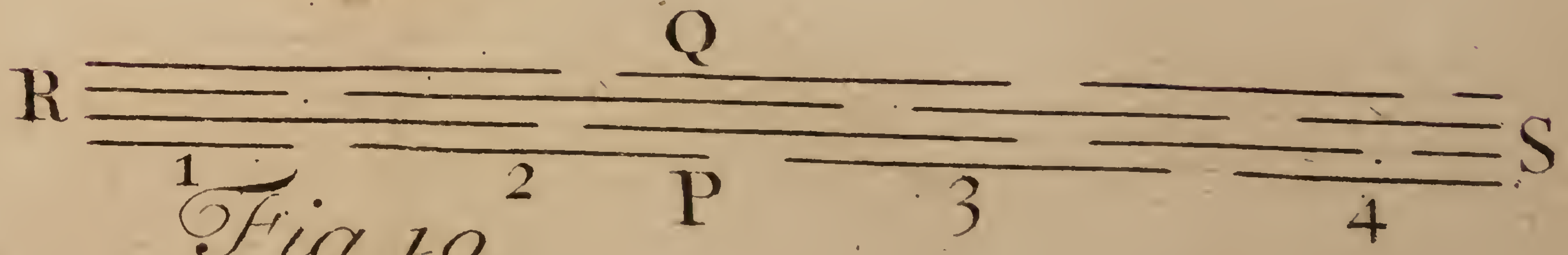
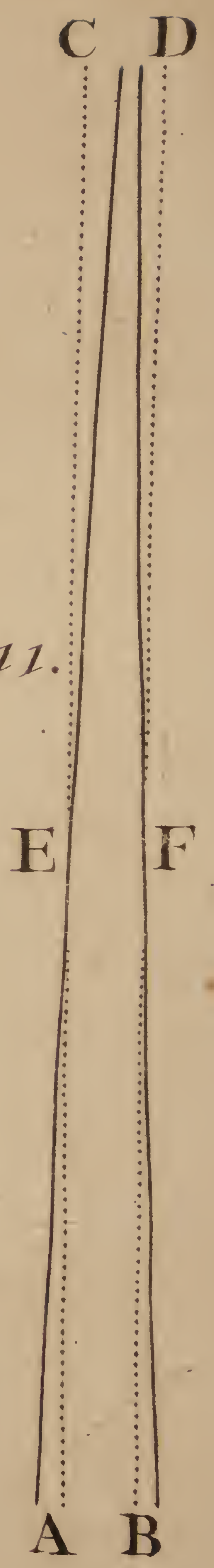


Fig. 11.



Medicina Statica.

SECT I.

Of Inſenſible PERSPIRATION, *as it appears by Weight.*

APHORISM I.

IF there daily be an Addition of what is wanting, and a Subſtraction of what abounds, in due Quantity and Quality, loſt Health may be reſtor'd, and the preſent preſerv'd.

EXPLANATION.

PERSPIRATION, both as to the Matter of it and its Quantity, is ſo abſolutely neceſſary to the well being of a Human Body, that a Diſeaſe can neither be removed, nor Health maintained without it be rightly performed; and where it is ſo, there muſt be both a continual Waſt of Subſtance, and a proportionate Supply: The former is occaſion'd by the conſtant Circulations of the Animal Fluids, and the forcible Contractions and Attritions of the Solids, whereby ſuch Parts as are found not ſuitable for the Accretion and Nouriſhment of the Body, at length become broke ſo ſmall, as to fly off thorough ſuch Paſſages as are by Nature provided for that Purpoſe; and this makes it neceſſary that there be a proportionate Recruit by daily Food. And therefore,

APH. II.

If a *Phyſician* who has the Care of another's Health, is acquainted only with the ſenſible Supplies and Evacuations, and knows nothing of the Waſt that is daily made by Inſenſible Perſpiration, he will only deceive his Patient, and never cure him.

APH. III.

He only who knows how much, and when the Body does more or leſs inſenſibly perſpire, will be able to diſcern, when, and what is to be added or taken away, either for the Recovery or Preſervation of Health.

APH. IV.

Inſenſible Perſpiration alone, diſcharges much more than all the ſenſible Evacuations together.

EXPLANATION.

This *Aphoriſm*, although it may appear at firſt View very ſtrange to ſuch who are not well acquainted with the Make and Oeconomy of a Human Body, and particularly with the Diſcharges made this way, yet there is hardly any one thing relating thereunto, either of greater Importance, or more eaſily to be proved true. The Quantities of Meat and Drink taken in, in any given Time, being readily computed, as likewiſe the ſenſible Evacuations made in the ſame time; theſe compared with the Increaſe and Dimunution of Weight the Body has thereby undergone, will make it very eaſie to calculate, and with the niceſt Exactneſs, how much in that time, the Waſt by Inſenſible Perſpiration has been, in Proportion to all the Senſible Evacuations; which will be found to be very large, as we ſhall ſee in the following *Aphoriſms*. It ought therefore to be of the utmoſt Concern to a *Phyſician*, not only thoroughly to acquaint himſelf with the nature of this Evacuation, but likewiſe thoroughly to know by what means it is to be promoted or leſſen'd, according to the ſeveral Exigencies of his Patient; either for the Preſervation or the Recovery of his Health.

APH. V.

Inſenſible Perſpiration, is either made by the Pores of the Body, which is all over Perſpirable and covered with a Skin like a Nett; or it is performed by Reſpiration through the Mouth, which uſually in the ſpace of one Day amounts to about the quantity of half a Pound, as may plainly be made appear by breathing upon a Glaſs.

EXPLANATION.

By Pores, are to be underſtood the Excretory Ducts of the cutaneous Glands, both internal, as of the Guts and *Viſcera*, and the common coverings of all the Muſcles, as well as the external of the outer Skin. And Nature has ſo provided, that if by any external Cauſe this neceſſary Evacuation is hinder'd in any one Part, it is always increaſed in another, or elſe a Diſtemper will enſue; for which reaſon, when the Coldneſs of the external Air, which more immediately affects the outer Skin, leſſens the inſenſible Perſpiration that way; either the ſenſible Evacuations are encreaſed, as commonly the Urine, or greater Quantities are carried off by Reſpiration, from the Lungs and Parts about the Mouth, or perſpired into the Cavities of the Guts; which afterwards are diſcharged by breaking Wind, either upwards or downwards: For as long as the Impulſe from within remains the ſame, wherever there is the leaſt Reſiſtance, there always will be the greateſt Derivation of the Perſpirable Matter. And from hence it is that we ſo frequently find when the Body is more than uſually expos'd to external Cold, Gripings, and great uneaſineſſes in the Bowels, which is nothing elſe but ſome part of the Perſpirable Matter that ought to have paſſed the outer Skin check'd by the Cold, and by an opener Paſſage within, thrown off that way. To this Purpoſe 'tis likewiſe very obſervable in *Dogs*, whoſe outer Skin is very little Porous, that in hot Seaſons and upon much Exerciſe, whereby the more than ordinary Motions and Attritions of their circulating Fluids produce larger Quantities of Perſpirable Matter, they throw off a vaſt deal from their Lungs in Reſpiration, and the Parts about the Mouth, inſomuch that their Breath appears like thick Smoak.

Lewenhoeck pretends by the help of his Glaſſes to have diſcovered the Texture of the *Cuticula* to be ſcaly, and that thoſe Scales cover one another in ſeveral Lays, more or leſs according to the different thickneſſes of the Scarf-Skin in the ſeveral Parts of the Body. In the Compaſs of one Cuticular Scale, he reckons there may be five Hundred Excretory Channels, and that a Grain of Sand will cover one Hundred twenty five Thouſand Orifices through which we daily perſpire.

A P H. VI.

If eight Pounds of Meat and Drink are taken in one Day, the Quantity that uſually goes off by Inſenſible Perſpiration in that Time, is five Pounds.

EXPLANATION.

Whence appears the Truth of the fourth *Aphoriſm*: And that what is waſted by inſenſible Tranſpiration is to all the ſenſible Evacuations together, as Five to Three. Hence alſo it ceaſes to be a Wonder, that the Body becomes ſo much diſorder'd by taking Cold, (as it is commonly call'd, which is nothing elſe than a *Perſpiratio Diminuta,*) more than by any Obſtruction of the ſenſible Evacuations.

A P H. VII.

The Quantities inſenſibly perſpir'd, vary according to the Differences of Conſtitutions, Ages, Countries, Seaſons, Diſtempers, Diet, and the reſt of the Non-naturals.

EXPLANATION.

So that it is not poſſible exactly to determine the Quantities of the Perſpirable Matter, convenient to be diſcharged in all Perſons, nor are they in the ſame Perſon always alike, becauſe they are influenc'd and alter'd according to the ſeveral Cauſes above-mention'd; ſo that Quantity which is beneficial to one, may be more or leſs than what is convenient for another, and likewiſe not always and at all times of the Year convenient for the ſame Perſon. All which a careful Obſerver will ſoon be appriz'd of, as may be further collected from ſeveral of the following *Aphoriſms.*

APH. VIII.

If the Body be weighed in the Morning before and after Senſible Evacuation, then it will be eaſie to determine the Quantity that is waſted that Night by Perſpiration.

APH. IX.

If the Body encreaſes beyond its uſual Weight without Eating or Drinking more than cuſtomary, there muſt either be a Retenſion of ſome of the ſenſible Excrements, or an Obſtruction of the Perſpirable Matter.

APH. X.

The Body continues in the ſame State of Health, as long as it returns to its wonted Weight, without any increaſe of the ſenſible Evacuations: But if it comes to its Standard by larger Diſcharges, either by Stool or Urine, than ordinary, it then begins to decline from its former Health.

EXPLANATION.

There is ſo great a Difference between the Matter of Inſenſible Perſpiration, and that of the ſenſible Diſcharges; that the leſſening one will by no means compenſate for the ſuperfluities of the other, unleſs it be in very freſh Indiſpoſitions: For what ought to paſs through the cutaneous Pores, if by any means it is ſtop'd in the Excretory Ducts, or prevented from getting into them, it will be very difficult to prevent the Injuries that may ariſe from it, by enlarging the other Evacuations; becauſe by its ſtay in the Blood and other Juices, there will be made ſuch Alterations as cannot eaſily be remedied by ſimple Evacuation. The

Body therefore keeping to the ſame Standard of Weight by a regular Diſcharge of the Perſpirable Matter, is a certain ſign of good Health; but when that fails, and Nature endeavours to make amends by an encreaſe of the Senſible Evacuations, it is a great chance but ſome Diſtemper enſues; for

APH. XI.

If by Weight it appears, that Perſpiration is diminiſh'd; the following Days it muſt either be increaſed, or ſome ſenſible Evacuation enlarged; or elſe there will be laid a Foundation for a Cachexy, or a Fever.

APH. XII.

A larger Perſpiration, and greater ſenſible Evacuations than uſual, cannot be at the ſame time.

APH. XIII.

If any one ſenſibly evacuates more than he ought, at that time he perſpires leſs.

EXPLANATION.

Theſe are both true for the ſame Reaſon, for the increaſe of the ſenſible Evacuations, eſpecially by Stool and Urine, cuts off the ſupply of the *Materia Perſpirabilis* in Proportion to ſuch an increaſe, becauſe what is taken in by the Stomach, and deſign'd for Nouriſhment, is thereby carried away before it can mix with the Blood and other Juices, and go thoſe Circuits as as are neceſſary to convert it either into nutritious Juice, or break it into Parts ſo ſmall, as will admit of its Exhalation through the Skin.

APH. XIV.

To evacuate too much by Stool, Urine, or Sweat, and perſpire leſs than uſual is bad.

APH. XV.

A P H. XV.

If a Body returns to the ſame Standard every Day, without any change in the Quantity of Perſpiration, there will be conſtantly preſerved a perfect Health, and no need of Critical Evacuations.

A P H. XVI.

Bad Qualities ariſe when the Body is not one Day the ſame in Weight as another.

EXPLANATION.

Becauſe ſuch Changes cannot happen, either without ſome Diſorders in the Evacuations, or Irregularities in Eating or Drinking, from any of which the whole Conſtitution cannot but ſuffer.

A P H. XVII.

A Perſon may certainly conclude himſelf in a State of Health, if upon aſcending a Precipice he finds himſelf more lightſome than before.

EXPLANATION.

The Action of the Lungs in Reſpiration, depends ſo much upon a good Conſtitution of the Blood, from whence all the other Juices are made, that 'tis almoſt impoſſible there ſhould be any conſiderable Fault in the Blood, and the Lungs not ſome way or other affected by it: And likewiſe as the Invigoration of all the Solids, ſo as to render them ready for their proper Motions, ariſes from the ſame Fluid; it is a certain Argument of a healthful State, when any difficult Exerciſe, as walking up a ſteep Aſcent, can be performed without any Faintneſs or Laſſitude; and when on the contrary, thereby the Body ſeems lightſome and fitter for Motion; which Senſation a ſound Body perceives, becauſe by the Actions of the preceding Exerciſe, all the Animal Fluids are put into brisker Motions, the thinner Secretions performed in greater Quantities, but eſpecially that in the Brain, by which the Spirits are derived more plentifully into the Muſcles, and the groſſer Parts are broke ſmall enough to paſs off by Inſenſible Tranſpiration. But of Exerciſe that has this Effect, it is to be underſtood only ſuch as is moderate; otherwiſe the beſt Conſtitution may be ſtrain'd, the Fluids too much broke and waſted, and the whole Oeconomy thrown into Diſorder.

APH. XVIII.

From too great Fullneſs ariſe bad Qualities, but not, *vice verſâ.*

EXPLANATION.

That is, good Qualities do not ariſe from Emptineſs. Exceſs on neither ſide can be good; becauſe ſeveral ways the Body may be injur'd thereby.

APH. XIX.

Too great a weight and fullneſs may be leſſen'd by Senſible or Inſenſible Evacuations, either of digeſted or undigeſted Matter, and it is good ſo to do; but although it leſſens the Load, yet it leaves ill Qualities behind.

EXPLANATION.

By Fullneſs may be underſtood, either a *Plethora* or a too great increaſe of any of the Fluids, by a Diminution of ſome of the neceſſary Evacuations, which cannot but injure the Conſtitution, both by altering the Textures and Cohæſions of the Fluids, and by laying at the ſame time too great weight upon the Solids: But the contrary is not always true, becauſe there may be a Diſtemper when the Secretions are too large, and the Body too much emptied. And in the former Caſe, although a *Plethora* and too great a Fullneſs may be taken away by Bleeding or Purgative Medicines, ſo as to reduce the Body to its natural Standard of Weight; yet 'tis a great Chance, but that during ſuch an Overcharge, there may be done ſo much Injury as cannot be removed by thoſe Evacuations.

A P H. XX.

There are two Kinds of Inſenſible Perſpiration the one is during Sleep, of Humours that are well digeſted, and after which there is an increaſe of Strength: The other is when awake, and ariſes from indigeſted Humours, and is weakning more or leſs, according to the greater or leſſer Actions of the Muſcles during that Time.

EXPLANATION.

This *Aphoriſm* and the following, well underſtood, lays open the whole Buſineſs of *Perſpiration*, both as to the manner how it is performed, and its Conſequences good and bad. The reaſon why that which goes off in Sleep is moſt beneficial, is becauſe during that Time, the Solids are in a ſtate of Relaxation, and the Motions of the Fluids thereby ſomething remitted and more regular; by which means nothing is thrown off by any of the Secretions, eſpecially by the Cutaneous Glands, but what is thoroughly digeſted and fitted to paſs off that way; and likewiſe becauſe during the relaxed State of the Nerves in ſleep, that Secretion which is made in the Brain, and by which they are ſupply'd with a convenient Juice neceſſary for their Invigoration, is chiefly perform'd: Whereas waking, the Vibrations or Pulſations of the Solids. upon which the Motions of the Fluids altogether depend, are more diſturb'd and irregular, being ſubject to Alterations from abundance of Cauſes, even from the Thoughts that paſs through the Mind; whereby the Juices are more confuſed, and the Secretions not ſo perfect, becauſe with what is digeſted and ſuited to paſs the Strainers, there will oftimes go off ſome Parts as cannot be yet ſpared without great Prejudice: Beſides this Inconvenience likewiſe, the Solids being ſo much upon the ſtretch, and in conſtant Employ, that Juice which is abſolutely neceſſary for their Invigoration, and the Continuance of their Springs, is not derived to them in ſuch Proportions as it is waſted; by which means there muſt needs be a continual decay of

Strength and Spirits, although the Buſineſs of *Perſpiration* goes on never ſo well, until freſh Recruits are ſupply'd by Sleep.

APH. XXI.

That Perſpiration which is beneficial, and moſt clears the Body of ſuperfluous Matter, is not what goes off with Sweat, but that inſenſible Steam or Vapour, which in Winter time exhales to about the Quantity of Fifty Ounces in the ſpace of one natural Day.

EXPLANATION.

It is very neceſſary to diſtinguiſh between Perſpiration and Sweat, they differing ſo much from one another, that as one is uſeful and preſerves Health, the other is always injurious and deſtructive of it, unleſs when 'tis to give Relief from ſome greater Evil, as a *Fever* or the like. *Perſpiration* makes the Body lightſome and chearful, but Sweat faint and diſpirited: And the more a Perſon ſweats, it is certain that ſo much the leſs he Perſpires; becauſe the latter depends upon a hardy and vigorous Conſtitution of the Solids, which the former is hurtful to, and deſtroys. The matter of them likewiſe differs, and is very differently ſupply'd; that which inſenſibly perſpires being ſuch, as after a long Courſe of Circulations in all the ſhapes of the Animal Liquors, is diveſted of all that can be of further Service to any Part of the Body, and broke ſo very ſmall, that it paſſes away without any Injury or Loſs: But the matter of Sweat being of a thick Conſiſtence, and ſupply'd more immediately from the Blood, not only robs the Body of a great deal of its Nouriſhment, but relaxes and ſupples the Fibres ſo much, as to deſtroy in a great meaſure their Elaſticity, which neceſſarily weakens the Conſtitution, and makes it liable to abundance of Diſorders.

APH. XXII.

Inſenſible Perſpiration becomes Viſible, when there is too great a ſupply, or upon Faintings, or upon violent Motion.

EXPLANATION:

In Faintings the Nerves are very much relaxed, and become ſo ſlack, that the Excretory Paſſages are vaſtly enlarged, and as it were lye quite open, upon which the ſmall force the Blood has left, is ſufficient to carry through them a great deal, which otherwiſe would continue its Circulations longer in the Veſſels, and this Matter being too groſs and heavy to riſe in an inſenſible Steam, lodges and hangs upon the Skin thick and clammy: Violent Exerciſe alſo does much the ſame by an increaſe of the Bloods Velocity, as the former by enlarging the Paſſages, only with this Difference, that what is forced out by an additional Impulſe of the Fluids, although it is in Quantity large enough to appear wet upon the Skin, yet it is not by abundance ſo clammy as the other, or defrauds the Body ſo much of a Balſamick nutritious Juice; wherefore we always experience involuntary faint Sweat to be much more injurious than what happens upon hard Labour; the former ſoon ſinking a Perſon into irrecoverable Decays and Waſtings, and the latter continuing even without any apparent Prejudice a long time.

APH. XXIII.

Inſenſibie Perſpiration accompany'd with Sweat is bad: Becauſe Sweat diminiſhes the ſtrength of the Fibres. 'Tis ſometimes ſaid to be ſerviceable, Becauſe it diverts from a greater Evil.

EXPLANATION.

See the *Explanations* to the Two preceding *Aphoriſms*, where the Reaſons of it will manifeſtly appear; very much likewiſe to this Purpoſe is the following.

APH.

APH. XXIV.

By how much the more ſubtile, and without apparent Moiſtneſs, Perſpiration is made, it is by ſo much the more healthful.

APH. XXV.

All the the thinner Excrements are the heavieſt, and ſink: The thick ones are lighter and ſwim, ſuch as are the hard conſiſtent Stools, the *Saliva*, and ſeveral others of the like Kind.

APH. XXVI.

The thin Secretions abate more the Weight of the Body in Proportion to their Quantities, than the hard and conſiſtent.

EXPLANATION.

'Tis meant here of what we call *Specifick Weight*, which is a Term ſo frequently uſed, and by a great many ſo little underſtood, that I cannot think it improper here to give a ſhort Explanation of it. *Gravity* or *Weight* is taken in a double Senſe; the one is called *Abſolute*, and the other *Specifick Gravity*: By the firſt is to be underſtood, That Univerſal Property which we find in all Bodies whatſoever, by which they are ſaid to *Gravitate*, or to have a Tendency towards ſome determinate Point; but by the latter is only to be underſtood, the different *Energy* or Force of this Univerſal Property in different Bodies, with Relation to one another. For as Gold and Iron, both of them are endowed abſolutely with this general Property, yet in Relation to one another they are different in Weight, that is a Sphere of one is heavier than the Sphere of the other of the ſame Bigneſs, and this difference of Weight in different Compound Bodies, is called their *Speficick Weight*. Thus Gold, as before, is *ſpecifically* heavier than Wood, and Wood *ſpecifically* heavier than Spunge, The ſame Diſtinction is obſerved likewiſe as to Fluids, *Quick-ſilver* is *ſpecifically* heavier than *Aqua-Fortis, Aqua-Fortis* than Water, and Water than Air.

In ſeveral Places of theſe *Aphoriſms* regard muſt be had to this Diſtinction, or they cannot be underſtood, eſpecially in this and the following. Thus what is diſcharged in the Form of a Liquor, as the Urine and Sweat, is *ſpecifically* heavier than the hard and ſolid Excrements, and therefore the Body is ſooner freed from too great a Weight by the thinner than the thicker Evacuations; which plainly points out the moſt certain Methods to diſengage the Body from *Plethora's* and Præternatural Fulneſs; when they are not gone ſo far as to have brought a *Lentor* and Sizineſs upon the Juices, for then leſſening the Quantities of the Fluids will avail but little, without giving a conſiderable *Stimulus* to the Solids at the ſame time.

APH. XXVII.

The moſt Liquid Parts of our Food are likewiſe the moſt heavy, and the Solid lighter: Bread and Fleſh are light; Wine and Broaths heavy. A Glaſs of Wine is almoſt three times as heavy as a Piece of Bread of the ſame Bulk.

EXPLANATION.

This alſo is to be underſtood in the ſame Senſe as the foregoing, with regard to the Diſtinction between *Abſolute* and *Specifick* Weight; and then by this *Aphoriſm,* Wine is almoſt three times *ſpecifically* heavier than Bread.

APH. XXVIII.

That State of Body, which has a ſenſe of a greater Weight when there is none, is much worſe than when it perceives a greater Weight, and there really is ſo.

EXPLANATION.

The Reaſon is, becauſe if a Perſon feels a Heavineſs, when there is not in Reality any increaſe of Weight ; 'tis a certain Indication that he is under ſome waſt of Spirits, for a Diminution of Strength or Vigour will produce the ſame Senſe as an actual increaſe of Weight : Where therefore there is not any ſuch Increaſe of Weight, and ſuch a Senſe ariſes ; 'tis a certain Sign the Body is declining into a diſtemper'd State, and conſequently in a much worſe Condition than when ſenſible of a real Weight ; becauſe a due ſtock of Spirits and Vigour may find ſome way or other to diſengage the Body from ſuch an Incumbrance, and reduce it again to its natural Standard ; whereas when a Perſon feels a Burthen upon him only by the decay of Spirits, it is a Task of much more Difficulty, (when the Stomach and all the Solids principally concerned in the Offices of Digeſtion, muſt needs be enfeebled and very weak) to repair ſuch a Loſs, and will require a conſiderable time to bring it about, if the preſcribed Means ſucceed. From theſe Conſiderations alſo it appears further that,

A P H. XXIX.

Weight, with relation to the Perception of it in a living Body, is *Equivocal* ; becauſe it is conſiſtent, that at the ſame time a Body may actually be heavier, and yet ſeem lighter ; and on the contrary it may be render'd lighter than uſual, and yet at the ſame time feel heavier.

EXPLANATION.

So that when a Body is ſaid to be heavier or lighter than before ; 'tis to be underſtood with regard to the greater or leſſer Senſe a Perſon has at that time of a Weight upon him. And in this ſenſe one Perſon may be ſaid to be heavier than another of twice his *Abſolute* Weight ; and thus People frequently expreſs themſelves upon ſeveral Indiſpoſitions, that they have a Heavineſs upon them, although at the ſame time perhaps they are actually lighter, but only through a decay of Spirits and Strength are not ſo able as before to ſupport their uſual Bulk, and therefore they have then a ſenſe of a greater Weight. This Weight may be called *Relative*, and that by which a Perſon is ſaid to weigh ſo many Pounds exactly, without any regard to the Perception the Perſon has himſelf, may be termed *Abſolute* Weight; and care muſt be taken to obſerve this Diſtinction in ſeveral of theſe *Aphoriſms*, otherwiſe their Senſe will be miſtaken.

APH. XXX.

Where both theſe concur, that a Perſon perceives himſelf lighter than uſual, and that at the ſame time there is no increaſe in his *Abſolute* Weight, 'tis a certain Indication of Health.

EXPLANATION.

Becauſe ſuch a Perception can ariſe from nothing elſe than a plentiful Invigoration of the Solids by a good ſtock of Spirits, which likewiſe depends upon a perfect Digeſtion, and a regular Diſcharge of all the Animal Functions, and therefore nothing can be a more certain ſign of Health, unleſs it be in *Manaicks* and *Delirious* Perſons.

APH. XXXI.

That Body which falls into a Standard of Weight below that of a State of Health, is in a worſe Condition than that which riſes above it.

EXPLANATION.

Becauſe it is very difficult upon any Waſt or Decay of the Subſtance of the Body, to reſtore it again by Supplies of a well digeſted Nouriſhment; the Methods of doing it, at a time that the Solids are weak and enervated, which they muſt needs be upon ſuch Decays, being both very difficult and uncertain, and what requires alſo a great length of Time. Whereas to reduce it from too great an Increaſe, there are ſeveral Evacuations which are ſpeedy and effectual, and attended with no great Hazards: To which if Abſtinence,

ſtinence, moderate Exerciſe, and Temperance in the uſe of all the *Non-naturals* are added; they cannot eaſily fail of Succeſs.

A P H. XXXII.

When a Body ſinks below its healtful Standard, it immediately grows weaker: Which does not happen when it becomes lighter upon Sleep after a good Digeſtion.

EXPLANATION.

The Body cannot fall below its healthful Standard by violent Exerciſe or obſtinate Faſtings; without loſing from the very Subſtance of the Solids more than can be ſuddenly repair'd, and therefore muſt of Conſequence thereby be render'd much Weaker. But it is quite otherwiſe when the Body becomes lighter after Sleep, becauſe that is occaſion'd only by the Waſt which has been before made of ſuch a Matter, as after divers Circulations is found of no further ſervice, and broke ſo ſmall as to fly off inſenſibly through the Cutaneous Paſſages; and it is a great Benefit to the Conſtitution that it does ſo go away. What is loſt likewiſe by the former means, is by over-ſtraining the Springs of the Solids; and wearing the Orifices of the Excretory Glands too wide, both by the Groſsneſs and additional Impulſe of the circulating Fluids: Whereas by the latter, what goes away, is only a very fine thoroughly digeſted Matter, which riſes through the Skin like a Vapour or Steam, without any manner of Difficulty or Diſturbance to the Body.

A P H. XXXIII.

If without the force of Exerciſe the Weight decreaſes, and the Strength decays, it is becauſe there is not a ſupply of Nouriſhment in Proportion ſufficient to recruit what is waſted.

EXPLANATION.

From the neceſſary Actions of the Muſcles in the Performance only of the Vital Functions, both the Veſſels will e ſo much wore away themſelves by the Attritions of eir circulating Juices, and ſome parts of the Juices ſo uch broke, as to make it neceſſary that there ſhould be a ntinual ſupply ; which, if it be not anſwerable to ſuch a ſs, there cannot but follow a Defection both in the eight and Strength of the Body.

APH. XXXIV.

There are but three ways only by which a Bo-y can grow weaker ; the one is when its Bulk creaſes, without any Decay of Spirits : Another hen the Spirits ſink, and the Body keeps to s uſual Standard ; and the other when both Spi-its and Bulk decay together.

EXPLANATION.

The whole of this appears from what has been ſaid be-re, *Explan. Aphor.* XXVIII. The Weight of the Body always to be taken *Relatively*, and therefore in what ate ſoever the Spirits bare leſs Proportion to the preſent eight than before, the Body is properly ſaid thereby to come heavier : And 'tis to be underſtood with regard to e ſame Diſtinction, when 'tis ſaid to be weaker.

APH. XXXV.

That Weakneſs which is felt when the Body cays both in Strength and Bulk, is the moſt ngerous : Becauſe the Bulk is very conducive its Vigour.

EXPLANATION.

The former Part appears from *Aphor.* XXIX, XXX, XXI above ; and the latter is confirmed by the following.

APH. XXXVI.

The Weight or Bulk of the Body adds conſide-ably to its Strength, either in drawing, carry-g, turning, or ſtriking.

ſtinence, moderate Exerciſe, and Temperance in the uſe o all the *Non-naturals* are added, they cannot eaſily fail o Succeſs.

APH. XXXII.

When a Body ſinks below its healtful Standard it immediately grows weaker: Which does no happen when it becomes lighter upon Slee after a good Digeſtion.

EXPLANATION.

The Body cannot fall below its healthful Standard b violent Exerciſe or obſtinate Faſtings, without loſing fro the very Subſtance of the Solids more than can be ſuddenly repair'd, and therefore muſt of Conſequence thereby b render'd much Weaker. But it is quite otherwiſe when th Body becomes lighter after Sleep, becauſe that is occaſion' only by the Waſt which has been before made of ſuch Matter, as after divers Circulations is found of no furthe ſervice, and broke ſo ſmall as to fly off inſenſibly throug the Cutaneous Paſſages, and it is a great Benefit to th Conſtitution that it does ſo go away. What is loſt likewiſe by the former means, is by over-ſtraining the Spring of the Solids, and wearing the Orifices of the Excretor Glands too wide, both by the Groſsneſs and additional Impulſe of the circulating Fluids: Whereas by the latter what goes away, is only a very fine thoroughly digeste Matter, which riſes through the Skin like a Vapour o Steam, without any manner of Difficulty or Diſturban to the Body.

APH. XXXIII.

If without the force of Exerciſe the Weight decreaſes, and the Strength decays, it is becauſe there is not a ſupply of Nouriſhment in Proportion ſufficient to recruit what is waſted.

EXPLANATION.

From the neceſſary Actions of the Muſcles in the Performance only of the Vital Functions, both the Veſſels will be ſo much wore away themſelves by the Attritions of their circulating Juices, and ſome parts of the Juices ſo much broke, as to make it neceſſary that there ſhould be a continual ſupply; which, if it be not anſwerable to ſuch a Loſs, there cannot but follow a Defection both in the Weight and Strength of the Body.

APH. XXXIV.

There are but three ways only by which a Body can grow weaker; the one is when its Bulk increaſes, without any Decay of Spirits: Another when the Spirits ſink, and the Body keeps to its uſual Standard; and the other when both Spirits and Bulk decay together.

EXPLANATION.

The whole of this appears from what has been ſaid before, *Explan. Aphor.* XXVIII. The Weight of the Body is always to be taken *Relatively*, and therefore in what State ſoever the Spirits bare leſs Proportion to the preſent Weight than before, the Body is properly ſaid thereby to become heavier: And 'tis to be underſtood with regard to the ſame Diſtinction, when 'tis ſaid to be weaker.

APH. XXXV.

That Weakneſs which is felt when the Body decays both in Strength and Bulk, is the moſt dangerous: Becauſe the Bulk is very conducive to its Vigour.

EXPLANATION.

The former Part appears from *Aphor.* XXIX, XXX, XXXI above; and the latter is confirmed by the following.

APH. XXXVI.

The Weight or Bulk of the Body adds conſiderably to its Strength, either in drawing, carrying, turning, or ſtriking.

EXPLANATION.

The Truth of this appears from the following Propoſition, demonſtrated by *Borrelli, de vi Percuſſionis, That the Force of any moving Body is in Proportion to its Velocity, and the Quantity of Matter it contains :* So that notwithſtanding a Perſon of a ſmall Bulk, may with Reſpect to his Stock of Spirit and Vigour be ſaid to be very ſtrong ; yet one of a larger Size, although not invigorated with a like Quantity of Spirit in Proportion to his Bulk will be *abſolutely* much ſtronger ; eſpecially in the Exerciſes above mention'd, where the Force of *Percuſſion* depends ſo much upon the Bulk of the moving Body ; See *Aphor.* XCIII. below, in this Section, and for this Reaſon frequently,

APH. XXXVII.

The Strength of an old Man is owing more to the Bulk of his Body, than his Stock of Spirits : An old Perſon of a ſmall Size may live long, but can never have much Strength.

APH. XXXVIII.

If a Body returns to its wonted Standard upon Sleep, without any Senſe of Uneaſineſs afterwards, it is good ; becauſe it is a Sign of a Perfect Digeſtion ; but if otherwiſe, it is bad.

EXPLANATION.

Becauſe what is inſenſibly gone off in Sleep, and by which the Weight of the Body is leſſen'd, is only ſuch a Matter as is thoroughly digeſted, and it is a Relief and Benefit to Nature to get rid of it ; and that nothing elſe goes off with it in Sleep, appears, when there is no Uneaſineſs follows it : But when any Part of the Nutritious Juices paſſes along with it, notwithſtanding the Body is render'd thereby lighter, yet Inconvenienies will enſue.

APH. XXXIX.

The Body is not preſently thrown into a Diſeaſe by an external Injury, unleſs ſome of the *Viſcera* be firſt diſpoſed to receive its Impreſſions, which Prediſpoſition may be known by a greater or leſſer Weight than is cuſtomary, and that not without ſome conſiderable Uneaſineſs.

EXPLANATION.

Where all the Parts are equally ſound and ſtrong, any ſlight Diſorders from without are eaſily remedied; but where any Part is weaker than the reſt, either from hereditary Cauſes, or the Injuries of former Diſtempers, the leaſt Indiſpoſition affects it, and without timely Care will bring the whole *Oeconomy* into Diſorder. And when any particular Part is thus indiſpos'd, 'tis impoſſible but the leaſt Irregularity or Accident will ſo much diſorder it, as to hinder its right Performance of its proper Office, which according to its Importance in the *Oeconomy*, ſooner or latter affects the whole Body, ſo far as to be diſcernable either by an Increaſe or Dimunution of ſome of the Secretions.

APH. XL.

Whenſoever Nature is diſturbed in the Buſineſs of Perſpiration, ſhe ſoon begins to be defective in many more of the Animal Functions.

EXPLANATION.

Of ſo great Importance is a right Diſcharge by Perſpiration, both as to its Quantity and the Matter of it, that the whole Conſtitution immediately ſuffers by the want of it; which cannot be ſtrange to one who conſiders, what large Quantities go off by it.

APH. XLI.

When the Head is afflicted with Pain, the Body ſoon begins to perſpire leſs, and grows heavier.

EXPLANATION.

The Motions of all the Solids depend ſo much upon a due Conſtitution of the *Brain* and its *Meninges*; That 'tis impoſſible one ſhould be affected without the others being brought into Diſorder thereby; and Perſpiration being owing to the juſt and regular Motions of the Fluids, and thoſe to the due Impulſes of the Solids, 'tis unavoidable but that when the Head is out of order, Perſpiration muſt be ſo too; and that when one is in Pain, the other muſt be leſſen'd in its Quantity, and conſequently the whole Body become heavier: The Reaſon of which will further appear under *Aphor.* XLIX. in this *Section.*

APH. XLII.

The firſt Impreſſions of a Diſeaſe are much more eaſily diſcernable from the Changes of an unuſual Perſpiration, than from the Diſorders of any of the other Functions.

EXPLANATION.

Becauſe, as has been already ſaid, ſo much depends upon a Right Perſpiration, that it cannot be diſorder'd, but the whole Conſtitution muſt ſuffer; and nothing can more certainly be known, than the Quantities of it may be by weighing.

APH. XLIII.

If upon weighing; the Perſpirable Matter appears to have been obſtructed, and there is neither Increaſe of Sweat or Urine for ſome Days after, there is a great deal of Danger of a Putrefaction of the detained Crudities.

EXPLANATION.

The Solids will be ſo much oppreſſed by the ſuperfluous Load which is laid upon them by the Retenſion of the Perſpirable Matter, that unleſs there ſoon be a Diſcharge made of it by ſome of the ſenſible Evacuations, they will not be able to circulate it with ſo much ſwiftneſs as is neceſſary to prevent its falling into preternatural Ferments, there being nothing which more promotes that Inteſtine Motion of Liquors that diſpoſes them to Putrefaction, than Stagnation. For then their ſeveral Parts are left at Liberty to ſink or riſe according to their ſeveral Gravities, and obey their reſpective *Attractive Powers*; upon which ſeveral are broke ſmaller, and others run into Corpuſcles of different Kinds and Properties; whereas ſo long as they are kept in a Circulatory Motion by external Cauſes, they are not at Liberty to obey their *Attractive Powers*, or their ſeveral Gravities, but move on without any other Alterations, than what they receive from their caſual Occurſions and Attritions againſt oue another; the Conſequences of which is only breaking them ſmaller, and rendring the Liquor more Fluid. From all which it appears, that the different Fluidities of the Animal Liquors, are in the different Parts of the Body always, as their Velocities in each Part.

APH. XLIV.

But if upon weighing, it appears that a greater Quantity of the Perſpirable Matter has been carried off than uſual by any Violent Cauſe, it may be concluded that in the Room of ſuch a Waſt, there ſoon will be ſupply'd an undigeſted Matter, which will be apt to obſtruct the ſecretory Paſſages.

EXPLANATION.

The great Quantities which ſometimes fly off by Violent Exerciſe, or any other Cauſe, cannot but leave thoſe Fibres they laſt parted from, with too ſmall a ſhare of Moiſture; by which as ſoon as a ſupply is taken in by a freſh Meal, the new Juices preſs forward into thoſe Parts, faſter than they can be digeſted, and are thereby apt to ſtick in the ſmall Extremities, and obſtruct the Paſſages of the ſucceeding. Hence may be collected ſeveral good Obſervations with Regard to the Preſervation of Health. As after long Diſtempers which have waſted much the Subſtance of the Body, untill that Loſs is throughly repair'd, to live with a great deal of Temperance, feed ſparingly, and of what is eaſie to digeſt: To obſerve the ſame likewiſe after long Faſting, or after any Violent Exerciſe, or upon Travelling from Hot into Cold Climates: Becauſe in all theſe Caſes there is ſuch a great Waſt of Perſpirable Matter, and the Fibres are ſo much robb'd of their proper Moiſtures, that too large a ſupply of Food at once, as ſoon as it gets into the Veſſels, for want of its uſual Reſiſtances, would be preſs'd on too faſt, and fill the ſmaller Branches with Crudities.

APH. XLV.

If what is thus lodged in the ſecretory Paſſages, can be rendered Fluxile and Perſpirable, 'tis well; otherwiſe the obſtructed Part will firſt grow hard, and by degrees Schirrous.

EXPLANATION.

When an Obſtruction of the perſpirable Matter happens to be only in ſome Particular Part, if it is not quickly removed, by the continual Acceſſion of ſucceeding Matter to the ſame Part, there muſt neceſſarily be raiſed a Tumour; which, if it ſo happens to be ſituated as to hinder much the Paſſage of the Blood through the ſmall Arterial Branches, will increaſe with Pain and Inflammation: And if the Blood is quite ſtopp'd in any of the Veſſels, it will impoſtumate. But if the firſt Collection of Perſpirable Matter happens ſo to lodge it ſelf as not conſiderably to diſturb the Bloods Motion, it may continue a long time, until the thinner Parts of it are perſpired, and the reſt reduced to a hard knotty Subſtance. The beſt Remedies in ſuch Caſes are at firſt keeping the Diſtemper'd Part warm, Abſtinence, or a very ſparing Diet, and of ſuch Food as is eaſily Perſpirable, moderate Exerciſe, and a Diverſion by other Evacuations.

APH. XLVI.

If the obſtructed Matter can neither be removed by Nature, nor a Feveriſh Heat; there is immediate Danger of a Malignant Fever.

EXPLANATION.

In this is to be underſtood not a partial but univerſal Obſtruction of Perſpiration, which if it is not immediately remov'd, cannot but produce a Fever. By Natures removing it, can be underſtood no other, than the overcharge occaſioned thereby being thrown off by an Increaſe of ſome of the ſenſible Evacuations, which we very often find to be done, and a Fever thereby prevented; but when it does not happen ſo, a Fever will ariſe for theſe Reaſons; *Firſt*, an Obſtruction of the Perſpirable Matter cannot but Increaſe the Quantity of the Blood, becauſe it is derived from it, and by its Obſtruction preventing its further Derivation, whilſt any Supply is made either by Eating or Drinking, the Blood muſt increaſe. *Secondly*, The Increaſe of the Bloods Quantity, will increaſe its Preſſure againſt the Sides of the Arteries, and conſequently make that Stroke which is felt by the Finger when apply'd to one of them, ſtronger. *Thirdly*, The increaſed Quantity of Blood will likewiſe occaſion an Increaſe of the Fluid Secretions, in a Proportion greater than the Thicker; which ſee demonſtrated by Dr. *Cheyne*, in his *new Theory of Fevers*; and Dr. *Wainwright* in *Propoſ.* 18. *of Animal Secretion.* By this the Secretion of the *Succus Nervoſus* in the Brain will be increaſed, and thereby the Vibrations of the Solids become quicker and ſtronger. *Fourthly*, The Quickned Vibrations of the Solids will increaſe the Velocity of the Blood, and break its Parts ſmaller, which conſequently makes it take up more Room, becauſe the Surfaces of Bodies, upon their Diviſion, do not ſo faſt decreaſe as their Solidities; theſe being in a *Triplicate*, but thoſe only in a *Duplicate* Proportion to their Diameters; That is, the Surfaces of the divided Parts taken together, are much greater in Proportion to the Matter contained under them, than the Surfaces of the ſame Quantity of Matter, when not broke into ſo many Parts; ſo that the further the Diviſion of any Body is carried, the more Space will that Body thereby take up: And upon this Account alſo will the Arteries be more diſtracted, and the Pulſe raiſed, which is what every one calls a *Fever*; and after this manner Things go on, either until the Obſtruction is removed, or the Overcharge carried off by an Increaſe of ſome Senſible Evacuation, or thrown aſide in an Abceſs upon ſome particular Part; and thereby the *Equilibrium* between the Contraction of the Solids, and the Reſiſtances of the Fluids again reſtored; or elſe until the Solids are wore out, and have quite loſt their Springs; and unable longer to continue their Motions ſubſide, the Fluids ſtagnate, and Death enſues. At the firſt Attack therefore of acute Fevers, the principal Thing to be done, is either to promote immediately that Evacuation which has been obſtructed, or if that cannot be done, ſome other; whereby an Increaſe of the Quantity of Blood, and conſequently an Acceleration of its Motion, may be prevented, and all its threatning Attendants put out of Danger.

APH. XLVII.

Feveriſh Perſons are as much in Danger, when Perſpiration is hinder'd by an unskilful Adminiſtration of Medicines, as by their own Errors.

EXPLANATION.

A wiſe Phyſician therefore will be very wary in the Beginning of a Fever, and not too buiſie with Medicine, until he finds what Courſe Nature her ſelf takes to throw off the Diſtemper; and then his prudent Aſſiſtance is neceſſary, and may enable the Patient to get over a Diſtemper, which otherwiſe he might ſink under.

APH. XLVIII.

A moderate Doſe of *Caſſia* does not divert Perſpiration, nor impair the Strength, but only rids the Body of a Superfluous Load: But other Purges empty too much, and reach the Parts more remote, and carry off too great a Quantity; for the following Food will preſs ſo haſtily into the emptied Paſſages, that the Bowels and Bladder will be defrauded of their due Moiſtures, whereby the Body afterwards frequently grows heavier.

EX-

EXPLANATION.

The Conſequences of too ſtrong Cathạrticks, as to filling the Body with Crudities afterwards, will be the ſame, as from too large a Perſpiration, and for the ſame Reaſon, which ſee in *Explanation to Aphoriſm* XLIV. And beſides the Inconveniencies of emptying the Veſſels too much, as all increaſed Evacuations do, ſtrong Purgatives have further this ill Effect, as they ſtimulate the Solids much, they both occaſion thereby a greater Waſt of the nervous Juices, and at the ſame time contract them ſo as to hinder Perſpiration, which makes the Body heavier.

A P H. XLIX.

All Pain, or Hard Labour leſſens the Quantity that goes off by Perſpiration.

EXPLANATION.

That true and natural Perſpiration, which is beneficial and neceſſary to the Conſtitution, requires ſuch a peculiar Texture of the cutaneous Paſſages, that if they are too large, a great deal beſides truly digeſted Matter will fly off, and weaken the Body; and if they are too much ſtraightned, there will not be ſufficient Room for that which ought to paſs: Now every thing which puts any Streſs upon the Nerves, ſtraightens the Excretory Pores, which are formed by the manifold Convolutions of their Extremities: For the whole nervous Syſtem is like a Piece of Net-Work, where one Thread is ſo weaved with another, that if one Extremity is pulled, the Motion will be continued through the whole. When therefore any one Part of the Body is afflicted with acute Pain, the whole becomes ſo much affected by it, that the Nerves will every where be drawn ſtraighter, and thereby the Excretory Paſſages leſſen'd, and conſequently a leſs Diſcharge of the Perſpirable Matter made at that Time, than is uſual and needful. Hard Labour likewiſe or any Violent Exerciſe has the ſame Effect as Pain, and for the ſame Reaſon, with this Difference only, That Exerciſe, by the Actions and Attritions of the Muſcles, as it ſtraightens the Paſſages, ſo it alſo at the ſame time, breaks the Perſpirable Matter ſmaller, and renders it thereby more paſſable; which Pain does not without a Fever.

APH. L.

Any external Cold, though never ſo ſmall, in the time of Sleep, hinders Perſpiration.

EXPLANATION.

Sleep is ſo neceſſary for a right Perſpiration, as appears from what has been ſaid under *Aphor.* XX. That if it be diſturbed at that Time, the ill Effects of it are the more diſcernable; and that eaſie Relaxation the Nerves are under during Sleep, makes them more ſenſible of external Cold, which acting upon them as a *Stimulus*, contracts them, ſtraightens the cutaneous Pores and ſo hinders Tranſpiration. Indeed the whole Buſineſs of Sleep, as to its Service in the *Animal Oeconomy*, ſeems to be nothing elſe but to favour the Admiſſion of freſh Supplies of Spirits to the Nerves, and the letting out what is become uſeleſs by Tranſpiration, neither of which can ſo well be perform'd in a State of Contraction, which they always are in when awake: As ſoon therefore as the old Stock is gone off, and they are ſupply'd with freſh Juices from the Blood, by the Secretion made in the Brain, there ſeems to be no further need of Sleep, nor is it poſſible, almoſt to continue it longer without the Help of Medicines. Hence may be deduc'd the Reaſons, why ſleeping ſoon after a Meal, inclines People to be fat and corpulent; which is, becauſe letting the Nerves into ſuch a relaxed State upon a full Stomach, gives Liberty to a greater Derivation of nutritious Juices into the Habit of the Body, than Nature requires, and that too before the Supply of a former Meal has finiſhed its Circulations, and is broke ſmall enough to paſs off through its proper Outlets, and make room for a new one.

A P H. LI.

One of the moſt common Hindrances of Perſpiration in Summer Time, is frequent Toſſing about in Bed.

EXPLANATION.

Becauſe ſuch reſtleſs Motions prevent that Relaxation which quiet Sleep indulges, and is neceſſary for a due Perſpiration.

A P H. LII.

There are Three Internal Cauſes which hinder Perſpiration ; Natures being employ'd another way, Diverſion, and a Decay of Spirits.

EXPLANATION.

By Natures being employ'd another way muſt be underſtood, either by ſome ſtreſs laid upon ſome particular Part, as in Pain, or upon a full Stomach, which contracts the Nerves, and hinders Perſpiration as above-mention'd ; or by an Increaſe of the Senſible Diſcharges, which has the ſame Effect, by diverting the Matter off it another way, and cutting off its Supplies. The Term in its ſelf is very obſcure, although frequently made uſe of. By Diverſion is the Enlargement of ſome other Evacuation. A Decay of Spirits from what Cauſe ſoever, cannot but leſſen Perſpiration, becauſe the Invigoration and Force of the Solids, upon which Perſpiration neceſſarily depends, is by that means deſtroyed : For the Elaſticity of the Fibres ariſes from a due ſupply of a convenient Fluid, which we commonly call *Animal Spirits*, of which whenſoever they are defrauded, they become unfit for Motion.

A P H. LIII.

To this Purpoſe it appears upon weighing, that during the Operation of a Medicine, and after Repaſt for the ſpace of three Hours together, there is but very little Perſpiration :

For in the Operation of a Medicine Nature is employ'd in the Senſible Evacuations; and after Eating, in Digeſtion.

EXPLANATION.

In this again the Propoſition is true and eaſily demonſtrable; but the Reaſon for it given, none at all. The Word *Nature* here being ſo general and complex, that no diſtinct Idea can be fixed to it, and inſtead of giving any Notion of a *Mechanical Procedure*, which in ſuch Matters always ought to be kept up to, it leaves the Reader altogether in Obſcurity; it has been obſerved before, that the Encreaſe of one Evacuation muſt leſſen another; and the Reaſon is both becauſe by how much more one abounds, by ſo much the leſs Matter will there be to ſupply the other; and becauſe the ſame Fluid cannot move in different Directions at the ſame time. For all the Animal Juices may be look'd upon in this Caſe, as a contiguous Collection of any Fluid in any compreſſible Veſſel, with Out-lets of different Diameters in ſeveral Parts of it; wherein 'tis well known that an equal and uniform Preſſure on all Sides, will force out the Fluid through all its Out-lets, and that both its Quantity and Velocity will be determined by the Diameter of each Orifice; That if the Diameters of the Orifices are on all Sides ſhortned at once, and the Preſſure remains the ſame; the Quantities forced out will be leſſen'd, and their Velocities increaſed: That if their Diameters are lengthned *è contrà*; that if one Orifice is only ſtraightned, the Velocities and Quantities paſſing at the other, will be increaſed; And conſequently that if it be made wider, the Quantities diſcharged by the reſt, decreaſed. All which may be demonſtrated by a Bladder full of Water prick'd with ſeveral Holes; by which familiar Experiment 'tis very eaſie to conceive, how one Evacuation by its Increaſe neceſſarily leſſens another; as likewiſe how its Decreaſe muſt promote ſome other, ſo long as the ſame Quantity of Fluid remains, and the ſame compreſſive Force of the Solids. When therefore either the Diſcharges by Stool or Urine are larger than uſual, 'tis no wonder that Perſpiration is leſs. That a full Stomach ſhould alſo hinder it; it is becauſe during that additional Weight, the Nerves are drawn ſtraighter, and their Excretory Paſſages made leſs, and therefore until Digeſtion is perfected in the firſt Paſſages, that is until the Load is removed out of the Stomach, and more equally diſtributed, ſo as not ſo much to be perceived as a Weight; until all this, I ſay, is done the Perſpirable Matter, for the Reaſon before given, muſt very much be obſtructed. This *Explanation* proves the following,

A P H. LIV.

In a Looſeneſs and Vomiting, Perſpiration is hindered, becauſe the Matter is diverted another way.

A P H. LV.

Too thick Apparel hinders Perſpiration, by waſting the Spirits.

EXPLANATION.

That is, by Supleing and Relaxing the Fibres too much, they loſe that Firmneſs which is neceſſary to a good Digeſtion. There can hardly therefore be any greater Error committed, than for weak People to load themſelves with Garments, which is very cuſtomary; and to do it, as they ſay, to avoid catching Cold, is the only way to expoſe themſelves to be diſorder'd thereby. Whatſoever means are uſed, there can never be obtain'd a firm laſting Health, although in the beſt Conſtitution too in the World, as long as this is practiſed; although indeed where any have had the Misfortune to be thus ill adviſed, it is by no means to be left off at once, but gradually to be brought about: And then in hot Seaſons, when Bathings ſometimes ſhould be uſed in Cold Water, in order to harden the Fibres, and give a Firmneſs to the Body, againſt the Approaches of the following Winter. Moderate Exerciſe is alſo very ſerviceable to this Purpoſe, as it helps to break the Perſpirable Matter ſmaller, and thereby render it more capable of paſſing through ſtraighter Pores. The many ill Conſequences of keeping the Body too tender, may be met with in ſeveral late Writers, as likewiſe the vaſt Advantages which ariſe from a cold hardy *Regimen*; See Sir *John Floyer of Cold Bathing*, with Dr. *Baynard*'s Letters; Mr. *Fuller*'s *Medicina Gymnaſtica*, and *Wainwright of the Non-naturals.*

APH. LVI.

The Body does not perſpire at all times alike, for in the firſt five Hours after Eating, there waſts about a Pound; the next ſeven Hours, about three Pound; and from the twelfth to the ſixteenth (at which Time there will be need of a freſh Supply) hardly half a Pound.

EXPLANATION.

For the Reaſon why the leaſt Quantity goes off by Perſpiration, in the hours after Eating, See *Explanat. Aph.* LIII. above. After Digeſtion is perfected in the Stomach and Guts, which commonly happens in four or five Hours time, Perſpiration is the largeſt, becauſe the Supply of the laſt Meal for the greateſt Part lyes then ready for Expulſion, which after a few Hours again decreaſes, and makes it neceſſary to recruit by a freſh Meal.

APH. LVII.

They who feed or purge in the Hours, when they ſhould moſt perſpire, which are thoſe in the Morning, are very much the worſe for it, becauſe thereby they hinder Perſpiration.

EXPLANATION.

How both Feeding and Purging hinder Perſpiration, appears from *Explanat.* to *Aphor.* LIII. above. They therefore who conſider of what Conſequence a due Perſpiration is, will be wary how they diſturb it.

APH. LVIII.

Imperceptible Perſpiration lightens the Body more than all the Senſible Evacuations together; for after Sleep every one may perceive himſelf lighter, without any of the Senſible Secretions, becauſe he really is ſo, by about three Pound. See *Aphor.* IV, V, VI. *Sect.* I.

APH.

APH. LIX.

Sixteen Ounces of Urine is generally evacuated in the ſpace of one Night; four Ounces by Stool, and forty Ounces and upwards by Perſpiration.

APH. LX.

There is as much carried off by Inſenſible Perſpiration in the Space of a natural Day, as by Stool in the Courſe of five Days.

EXPLANATION.

It appears from the three preceding *Aphoriſms*, that the Quantity waſted by Inſenſible Perſpiration in the Space of a Day, is double the Quantity of all the other Evacuations together, and ten times as much as goes off by Stool in the ſame Time: Whence may be collected the vaſt Advantages and Diſadvantages that may ariſe from this Diſcharge. In Caſe of a *Plethora* and too great a Fullneſs, either by a Debauch or by taking Cold, where it has gone ſo far as to deſtroy the due Conſtitution of the Fluids, and is to be remedied by ſimple Evacuation, nothing can be ſo effectual as to do it this way, both as to anſwer the End with certainty, and little Hazard, where it can conveniently be procured. Diſcharge by Urine or Stool cannot be had in any conſiderable Quantities, but by ſuch Means as irritate and diſorder much the Solids, and occaſion ſuch great Derivations of the *Liquidum Nervoſum* into the Bowels and Parts ſtimulated, that the Muſcles are not able to ſuſtain their proper Offices, but grow languid and faint, and ſo draw away the Blood its ſelf by *Phlebotomy*, the Conſequences are uncertain, all the Secretions both as to their Quantities and Qualities being liable to be altered thereby, the remaining *Maſs* by having more Room being ſubject to generate new Coheſions, and coaleſce into Corpuſcles of a new Sort; whether for the better or worſe no Body can tell. The drawing it off likewiſe in any large Quantity at once, ſo much affects and alters the Contractive or Elaſtick Powers of the Veſſels, as to produce *Syncope*'s, and occaſion very great Diſorders; for an Account of which at large, See *Bellini de Miſſione Sanguinis.* But to evacuate by inſenſible Perſpiration is attended with none of thoſe Difficulties, that being effected only by eaſie and ſteady Contractions of the Solids, and preventing that at the ſame time there be any Pains or Uneaſineſſes which may ſtraighten the Secretory Paſſages, or too great a Degree of external Cold: And as the ill Conſequences of a *Plethora* are advanced, ſo the means to increaſe the Contractions of the Solids, and keep open the cutaneous Paſſages are to be intended or remitted; at ſometimes an Increaſe only of external Warmth by Cloaths are ſufficient, but at others perhaps there may be needful very warm Stimulating Medicines, ſuch as are commonly call'd *Diaphoreticks*; and of Vomiting likewiſe, if nothing forbids, which wonderfully aſſiſts this Evacuation, by the Exerciſe it gives to all the Muſcles, and breaking thereby the Coheſions of the Fluids, and rendring them ſmall enough to get out at the Surface of the Body. But the Advantages of this Evacuation in ſeveral Caſes more particularly appears, when we come to conſider, what great Quantities are drawn off this way, to what may be done by any of the other Diſcharges; and how it more immediately relieves the diſtended Veſſels; but hence alſo will appear the Danger of doing any thing to promote this Evacuation beyond meaſure, in any waſting Conſumptive Caſes: For if ten times as much goes off this way as by Stool, then ten times as much diſcharged by Stool than what is uſual, will weaken a Perſon no more than but doubling the Quantity perſpired; nay, if we take into Conſideration, that the Perſpirable Matter is more immediately derived from the Blood, and never can be much increaſed, but that it will carry off with it a great deal of the nutritious and uſeful Juices; and that what is voided by Stool is nothing but the uſeleſs Parts of our Food, the Difference will appear much greater, and make the Loſs ſuſtain'd by a doubled Perſpiration, as great as that which is occaſion'd by a Diſcharge of near twenty times as much as is uſual by Stool.

APH. LXI.

What muſt then be thought of thoſe Phyſicians, who in all manner of Diſtempers, have Regard only to what is evacuated by Stool and Urine, and never take any notice of the Diſcharges by Inſenſible Perſpiration.

APH. LXII.

When Perſpiration is during the Night, larger than uſual, but without Sweat and Uneaſineſs, it is a ſure Sign of perfect Health.

EXPLANATION.

There are none of the Evacuations that the ſame can be ſaid of beſides: For an increaſe in any of them is always either critical of ſome Diſtemper, or elſe brings one. But this only by a fuller Meal, or Drinking more than ordinary, or after Watching longer than uſual, in good Conſtitutions is frequently increaſed, and ſo far from being attended with any ill Conſequences, that the Body is much benefitted thereby, and receives a greater ſtock of Spirits and Vigour. But it is thus only where there is a perfect ſtate of Health.

APH. LXIII.

The Body is then moſt free from a Diſtemper, when it is in the Mean of a Healthful Standard, not by any Spontaneous or Medical Evacuations, or by Abſtinence, but by the Means only of ſuch inſenſible Perſpiration, as goes off in Sleep, after a perfect Digeſtion.

EXPLANATION.

It is not to be ſuppoſed, that a Body cannot gain or loſe a little of its Weight without falling into a Diſtemper; therefore all that Latitude of Alteration a Body is capable of undergoing with reſpect to its Weight, without being diſtemper'd, is call'd by *Sanctorious* here, and in ſeveral Places of his *Aphoriſms, a Healthful Standard*; the greateſt Weight it is capable of, is its greateſt *Healthful Standard,* and its leaſt, the *loweſt Standard,* and between both, its *mean* or *middle Healthful Standard*; and all theſe are different, at different Ages and Seaſons, as will hereafter further appear.

APH. LXIV.

How much is neceſſary for every one to perſpire, in order to preſerve a State of perfect Health may be thus known. Take notice in a Morning, following a plentiful Supper, of the greateſt Quantity that perſpires in the ſpace of twelve Hours: Suppoſe it be fifty Ounces: Some other Morning obſerve the ſame, after eating no Supper, (and provided there was no Exceſs in the former Days Dinner) which ſuppoſe to be twenty Ounces: Then chuſe ſuch a ſettled Quantity of Food, and keep to ſuch a uſe of the Non-naturals, as will bring the Quantity perſpired to a Mean between fifty and twenty Ounces, which is thirty five Ounces; and by this means may a Perſon be brought to ſuch a perfect Standard of Health as may laſt to a Hundred Years.

EXPLANATION.

This I believe will be thought too troubleſome ever to be put in Practice; and if it ſhould, it would be no certain Rule, becauſe ſome Meats go off much more by Perſpiration than others, as we ſhall find hereafter in the *Third Section*: So that to keep rigidly to the ſame Quantity in all Meats, would ſometimes underdoe, and at others overcharge the Body ; according as they are more or leſs perſpirable, or nouriſhing. And for a Perſon to go thorough the Experiment, with all the Kinds of his Food, to find the ſeveral Quantities neceſſary to keep this Standard, would be a Task, that very few would care for, as hardly to be rewarded by the largeſt Enjoyments of this Life.

APH. LXV.

Even thoſe Men who are in a perfect ſtate of Health, and obſerve the utmoſt Moderation in Living ; once a Month increaſe beyond their uſual Weight, to the Quantity of one or two Pounds ; and at the Months end return again to their uſual Standard, in the ſame manner as Women do ; but then by a critical Diſcharge of Urine, it being either increaſed in its Quantity, or more turbid.

APH. LXVI.

Before the aforeſaid Criſis happens, there is felt a Heavineſs in the Head, and a Laſſitude all over the Body, which Symptoms are afterwards removed.

EXPLANATION.

The Contents of theſe two *Aphoriſms*, are of the greateſt Importance to be thoroughly acquainted with, notwithſtanding which they are ſeldom talk'd of, and leſs underſtood. That Women undergoe ſuch Changes is taken notice of by every one : But they only who truly underſtand the Reaſons of it, are alſo appriſed of the like Alterations in Men. The Hiſtories of Diſeaſes frequently take notice of Diſtempers returning at certain Periods and Ages of the Moon ; and ſome of them ſuch, as plainly have their immediate Riſe from a *Plethora* or too great a Fulneſs ; the Story of a *Periodical Hæmorrhage* a Man had at his *Thumb*, in the *Philoſophical Tranſactions*, is very notorious, and almoſt every one, but indifferently converſant in Phyſical Practice, muſt have one time or another met with Caſes of the like nature; but nothing is more frequent than *Epileptick Symptoms* and Pains in the Head; of the latter I now know a very remarkable Inſtance, in one between thirty and forty Years of Age, who for ſome Years together has not miſs'd one Month having a very ſharp Fit of Head-ach attended with a ſmall Fever; every Paroxyſm is preceded by a Heavineſs of the whole Body, a general Laſſitude, a Decay of Appetite, and ſometimes ſlight Rigors, and goes off generally by Sweat; if at any time a *Diarrhœa* has happened, eſpecially a little before the Attack, it always prolongs the Intervals between the Fits. Bleeding alſo has done the ſame. All which very plainly proves a Periodical Increaſe of the Bulk of the Body, and that the Overcharge is thrown off by thoſe ſhort Fevers. But how ſuch Increaſe is made, cannot be underſtood without knowing how the Animal Oeconomy, is affected by the external Air and its Changes, and how that too is influenc'd by the Revolutions of the Heavenly Bodies; but to enter into a *Rationale* of thoſe Matters here, would be of too great a Length, I ſhall therefore only recommend the Reader for a full Satisfaction herein, to Mr. *Boyle*'s *Hiſtory of the Air*, where he will find its Elaſticity, Condenſation and Rarefaction demonſtrated by unconteſtable Experiments: As to the Cauſes and Conſequences of its Gravitation upon the Fluids of the Globe, to the *Theory of the Tides*, as extracted from Sir *Iſaac Newton*'s *Phyloſophiæ Naturalis Principia Mathematica*, by Dr. *Edmund Halley*, printed in the *Philoſophical Tranſactions*, and likewiſe in Dr. *Harris*'s *Lexicon Technicum*; but above all, for a particular Application of this Theory to humane Bodies, conſult Dr. *Mead*, *De Imperio Solis ac Lunæ in Corpora humana*; and Dr. *Friend's Emmenologia*, where theſe Matters are treated in a way truly Mechanical and Demonſtrative.

A P H. LXVII.

The external Cauſes which are wont to hinder Perſpiration, are the cold Air, and that which is damp and Foggy; ſwimming in cold Water, a too groſs and viſcid Food; an Intermiſſion of uſual Exerciſe, and Diſuſe of Venery.

EXPLANATION.

Cold Air and ſwimming in cold Water, may be ſo managed, as in ſome Circumſtances and Conſtitutions to promote Perſpiration; as 'tis very well known in cold Bathing, and likewiſe that robuſt athletick Bodies perſpire moſt in a cold clear Air. It is therefore here to be underſtood, by expoſing the Body beyond what is uſual to the Air, and ſtaying too long in cold Water, and going into it at improper Seaſons, and without due Perſparation. A damp foggy Air cannot but be prejudicial to Perſpiration, for a great many Reaſons; its Elaſticity being much weaken'd, thoſe Particles which mix with the Blood will not be able ſufficiently to elevate and diſtend its Globules, upon which they run into cloſer Contacts with one another, and occaſion ſtronger Cohæſions, than are agreeable to the Purpoſes that Fluid is deſign'd for, and render it too ſiezy to part with a ſufficient Quantity for Perſpiration. It relaxes alſo and ſupples the Fibres of the Body, and hangs ſo much upon the cutaneous Pores, that the weakned Contractions of the Veſſels are not able to carry on the Fluids with force enough to break thorough thoſe Obſtructions. Too Viſcid a Food has the ſame Effect, by rendring the Juices too thick for Perſpiration; as alſo has an Intermiſſion of uſual Exerciſe, becauſe thereby the Blood wants thoſe Motions and Attritions as are neceſſary to break it ſmall enough to exhale thorough the Skin. The Conſequences of an Exceſs or Diſuſe of Venery, we ſhall ſee below in the *Sixth Section.*

A P H. LXVIII.

External Cold hinders Perſpiration in weak People, becauſe their natural Heat is diſſipated; but in Robuſt, it increaſes it; for thereby the Heat being drove to the Center, is doubled, and ſo Nature is ſtrengthned, and by that means drives out the Quantity of Perſpirable Matter that was retained, and makes the Body both ſeem and really become lighter.

EXPLANATION.

The Propoſition here is very true, but the Reaſon for it hardly intelligible, although according to the uſual way of talking in ſuch Caſes; for the Term *Vital Heat* here conveys no determinate or diſtinct Notion of any thing at all; and it is merely chimerical and diluſory, to ſay that Cold diſſipates it in a Perſon that is weak, and drives it inwards in one who is ſtrong, which then expands it ſelf *qnaquaverſum*, with ſuch force towards the Circumference, as to carry before it all Obſtructions that lye in its way. And this Miſtake, or Ambiguity at leaſt, is owing to a want of a right Application to the proper Principles of Knowledge in ſuch Matters, and by not keeping the Mind ſteady to that evident and demonſtrative Procedure, by which all Phyſical Agents operate. And without knowing the *Mechaniſm* of the Solids, it is not very likely that a Perſon ſhould ever underſtand much of the Natures and Properties of the Fluids, and amongſt others, the real Cauſes of that Heat, which is more eſpecially ſenſible in the Blood. That Heat then which is commonly called *Natural* or *Vital Heat*, is nothing elſe than a due Circulation of a peculiar Fluid, for nothing is more plain, than that its Increaſe and Decreaſe are always as the different Velocities of the Blood. If then the Velocity of the Blood is as the Force of the contracting Veſſels, which is eaſie to be proved; then the ſmarter and ſtronger thoſe Veſſels contract themſelves, the greater will always be the *Vital*

Heat, and *è contra.* Now why Cold invigorates the Contractions and Vibrations of the Veſſels in thoſe who are ſtrong, and weakens it in ſuch as are tender, is becauſe it both lays a greater Weight upon them, and acts likewiſe, as has been before mentioned, as a *Stimulus*: For whenever we have a greater Senſe of Cold from the circumambient Air, the *Barometers* will prove the *Atmoſpherical Preſſure* at that time to be increaſed; and that Water is ſtill heavier, and preſſes more upon the immerſed Body, is not to be diſputed. A greater Preſſure therefore upon the Veſſels *ab extra*, eſpecially when accompanied with a *Stimulus*, cannot but aſſiſt them in their Contractions, and carry on the faſter the circulating Fluid, and conſequently increaſe that Heat, which is a neceſſary Effect of ſuch Motion; but if the Fibres which conſtitute thoſe Veſſels are weak, that is, have ſo much loſt their Springs, as not to be able to return with a Quickneſs and Strength equal to that of their Contractions; then the Veſſels will by any ſuch Cauſe be only leſſen'd in their Capacities, and the Blood by meeting with greater Reſiſtances, be retarded in its Motion, and conſequently the *Vital Heat* will be decreaſed. Now Perſpiration, that is, the Quantity perſpired, being *cæteris paribus* in Proportion always to the *Vital Heat*, (as here explain'd) it follows of Conſequence, that whatſoever increaſes or diminiſhes the one, it will likewiſe have the ſame effect upon the other. When therefore by any external Cold, whether by the Air, or Bathing, the *Vital Heat* is increaſed, Perſpiration will thereby be promoted; and when the Heat is leſſen'd, Perſpiration will be ſo too.

APH. LXIX.

The Health of that Body is much more laſting and eſtabliſh'd, whoſe Weight in the Courſe of ſeveral Years neither increaſes nor decreaſes, than that which is changed every Year.

EXPLANATION.

Frequent Variations of the Standard of Weight, cannot be ſo well as keeping to a ſettled one, becauſe ſuch Changes muſt needs in ſome meaſure diſturb the Animal Functions, and put the Conſtitution into Diſorder; by ſometimes overcharging and ſtraining its Springs, and at others by defrauding ſome of the Parts of their due Supplies.

APH. LXX.

To return to the uſual Standard by an Addition of indigeſted Juices, is bad: But by what is well digeſted, Healthful. See *Aphoriſm* XLIV, XLV. of this *Section.*

APH. LXXI.

For a Perſon to loſe of his Weight with the ſame way of Living, is bad: For in the Room of that healthful Subſtance which is waſted, there is made no Supply.

APH. LXXII.

The Excrements of the Guts which are well digeſted are large in Bulk, but of ſmall Weight, they ſwim becauſe of the included Air, and what is ejected at once ſeldom exceeds the third of a Pound.

EXPLANATION.

That is, they are *ſpecifically* very light, and of Conſequence very porous, and full of Air, which makes them emerge, in Fluids of greater *Specifick Gravities.*

A P H. LXXIII.

If thorough any Error a Pound of Perſpirable Matter is detained in one Day, Nature is generally three Days in Diſcharging it.

EXPLANATION.

Which is commonly found true by Experience; for upon taking Cold, as it is uſually called, which is nothing elſe but a leſſened Perſpiration, it is ſeldom leſs than three Days before the Inconveniencies ariſing from it are removed; and by that time the Body either gets quite rid of them, or is ſeized with the uſual Symptoms of an accute Fever, of which, unleſs immediately removed by ſome Evacuation that carries off the Overcharge, no Body can ſee the Conſequences.

A P H. LXXIV.

A great deal is inſenſibly diſcharged, when Nature endeavours to get rid of the retained Perſpirable Matter, by Yawning, and Stretching of the Limbs.

EXPLANATION.

Theſe a Perſon is moſt inclined to juſt after Sleep, and the Reaſon is, becauſe during Sleep, a greater Quantity going off by the Pores of the Skin, than at other times, whenſoever a Perſon wakes, the increaſed Contraction that then happens, cloſes a great deal of the Perſpirable Matter in the cutaneous Paſſages which will continually give ſuch little Irritations, as excite Yawning and Stretching; and ſuch Motions by ſhaking the Membranes of the whole Body, and ſhifting the Contacts of their Fibres and the incloſed Matter, by degrees throw it off. Hence we ſee the Reaſon why healthful ſtrong People are moſt inclined to ſuch Motions, becauſe they perſpire moſt in time of

Sleep, and therefore have more of the Perſpirable Matter to lodge in the Pores, and greater Irritations thereunto.

I cannot eaſily paſs by here, the vaſt Advantages of ſome little Exerciſes juſt after waking in the Morning. At that time by the Quantity which is gone off during Sleep, the Body is much emptied and lighten'd, and all the Fibres invigorated with a freſh Stock of Spirits; that Firmneſs therefore and due Tenſion of the Solids, which are ſo neceſſary to a good State of Health, are then moſt eaſie to be obtain'd, becauſe the Fibres at that time may moſt conveniently be drawn up and harden'd, by any ſuch means as gently contracts them, and at the ſame time ſhakes off their groſſeſt and moſt uſeleſs Moiſtures. Now that Exerciſe does contract the Solids, nothing is more manifeſt, and therefore nothing can be of greater Service than to uſe it at theſe times. But ſuch is the beſt as gives a gentle Motion to all the Parts, eſpecially the Membranes and cutaneous Fibres, and this can be effected no ſurer way that I know of, than by the *Fleſh Bruſh*; which ought to be uſed juſt before riſing and putting on any Cloaths; and if now and then the Perſon would leap about, and ſtretch his Arms on all Sides, with Weights in each hand, it would wonderfully aſſiſt thoſe good Ends which are to be procured hereby. By this means all that Matter which is digeſted enough for Perſpiration, would be drawn out, and the Solids have no manner of Weight left upon them but the neceſſary Fluids, by which they would be enabled to perform their reſpective Offices with Eaſe and Vigour, and as in a Clock or Watch new cleaned, the ſeveral Motions of the whole Machine would go on with greater Regularity. See *Aphor.* XXXIV. *Sect.* IV.

APH. LXXVI.

The Perſpirable Matter is of Two Sorts, a lighter and a heavier.

APH. LXXVI.

The heavier Part coaleſces together, in its going off, in ſuch a manner as to produce Animals; ſuch as Ticks, Lice and the like.

EXPLANATION.

That the thicker Part may lodge and adhere ſo much upon the Surface of the Body, as to afford ſuch Creatures Nouriſhment, is not very unlikely; but that they are produced from this Matter without Animal Parents is a miſtake, as is eaſie to prove. The moſt effectual way to keep clear of ſuch Inhabitants, is to uſe the Methods preſcribed in *Explanation* to *Aphoriſm* XXXIV.

APH. LXXVII.

From the groſſer Part proceeds contagious Diſeaſes amongſt ſuch as lye together; for the lighter flies away, and the heavier Part gives the Infection.

EXPLANATION.

It is very likely to be thus in the Propogation of cutaneous Diſeaſes, as the *Itch*, which perhaps may be infectious only by Contact and lying together, and may be occaſioned by the heavier Part of the Perſpirable Matter lodging upon the Skin. But 'tis likewiſe certain, that the Infection of ſome Diſeaſes may be communicated by ſubtile Particles that fly off, and are efficacious at a very conſiderable Diſtance.

A P H. LXXVIII.

To thoſe who have the Perſpirable Matter obſtructed in very hot Weather, 'tis very troubleſom: But to thoſe who freely perſpire their due Quantity, the Heat is not uneaſie.

EXPLANATION.

Becauſe the obſtructed Matter not only increaſes the Weight, but alſo at ſuch Seaſons is apt to raiſe preternatural Ferments, and occaſion Putrefactions; or at leaſt to contract ſuch Qualities during its Stagnation, as may render it irritating and troubleſome; all which Inconveniencies are prevented when the Perſpirable Matter, as ſoon as made, flies off.

A P H. LXXIX.

The greateſt healthful Standard the Body is capable of, differs from the leaſt, as it more haſtens old Age: Suppoſe one enjoys perfect Health at two hundred, equally with another of five Pounds more: The Exceſs of the latter, has been obſerved to haſten Old Age five times as faſt.

EXPLANATION.

'Tis certain, that the greater Fulneſs there is, although not ſo great as immediately to bring on a Diſtemper, the ſooner will the Solids loſe their Springs, and wear out, having by that means more Labour to circulate and digeſt the Fluids, than where by a temperate and ſparing way of living, a Perſon always keeps to the loweſt healthful Standard.

APH. LXXX.

Why does animated Fleſh live, and not putrify and die? Becauſe it is daily renewed. Why may Children live longer than old Perſons? Becauſe they may be oftner renewed, from the loweſt Standard of Weight to the greateſt: For they are capable of more Weights that are healthful. Why do moſt old People of neceſſity dye? Becauſe they arrive to the only laſt healthful Standard that they are capable of. But why to the laſt only? Becauſe their Fibres are grown hard, and ſuch as poſſibly cannot be renewed; whence proceeds Death.

EXPLANATION.

The continual Motions that the Animal Fluids have impreſſed upon them by the contractile Veſſels, prevents their falling into ſuch inteſtine Motions of themſelves as tend to Putrefaction; as we find it happens to all circulating Liquors. But as ſoon as this Motion ceaſes, which it muſt needs do when the Solids no longer continue their Impulſes, as in Death, then as all Heterogeneous Fluids always will do, they will obey their natural Gravities and Attractions, under the Power, of which there is brought about ſuch a Change in the Maſs as is called Putrefaction. What is meant by different healthful Standards and their Changes, has been already explain'd, *Aphor.* LXIII. above. Old Perſons die becauſe their Solids are quite worn out, that is, they have ſo far loſt their Textures, as not to admit any further Supplies of ſuch Juices as are neceſſary to keep them in Motion. As when the Principal Wheels of a Clock are worn out, and they are capable no longer either of moving others, or being moved themſelves, 'tis neceſſary that the whole Machine muſt ſtand ſtill.

APH. LXXXI.

Why do thoſe who are ſeized with obſtinate Diſtempers, recover? Becauſe they are capable of enjoying Health under ſeveral Weights, ſome Perſons have loſt in a Diſtemper thirty Pounds, more or leſs according to the greater or leſſer Repletion before, and as the Diſtemper has been more or leſs inflamed or protracted.

EXPLANATION.

The Reaſon here given is but a very obſcure one; That the Body is capable of Increaſe or Waſt is moſt certain, without bringing Death, but it ſounds very odd to ſay, that is the Reaſon why a ſick Perſon does not dye. When a Perſon recovers from a Diſtemper, it is becauſe the Cauſe of that Diſtemper is removed before any of the Principal Parts are broke, or worn out and ſtand ſtill, but even before that is done, ſometimes in Fevers, particularly by the Acceleration of the Motions of all the Parts there is ſo much Subſtance worn away, as to lighten the Body by a great many Pounds, and vaſtly diminiſh its apparent Bulk: And ſuch Waſt frequently happens where the Perſon recovers, and is more or leſs, according as the Diſeaſe is raiſed or continued.

APHORISMS *added by the* AUTHOR.

APH. LXXXII.

Old Perſons by frequent ſpitting protract their Lives: For if what they ſpit was retained, it being incapable of Digeſtion, would hinder Perſpiration; from whence would enſue Suffocation and Death.

EXPLANATION.

It would be incapable of Digeſtion by ſuch aged Perſons, becauſe their Solids have very much loſt their Springs and Force of Contraction, upon which Digeſtion depends; and therefore it muſt needs lodge in great Quantities in the Air-Veſſels and Parts about the Lungs, inſomuch as if in time it is not thrown off and brought away by coughing and ſpitting, it will intirely deſtroy Reſpiration; whence Death. But if by accident in young People whoſe Lungs are ſound, there happens to be any Obſtruction of the Perſpirable Matter there, we often find that it is brought to Digeſtion, and cleared away; and a due Perſpiration of that Part again reſtored.

Sanctorius reckons the Quantity perſpired by the Lungs and Parts leading from them, as 1 to 10. But Dr. *Liſter* a great deal more; if then in old People, and others of weak and bad Digeſtion, ſuch Diſcharge this way is hindered; 'tis neceſſary that it be brought away by Cough and Spitting, or elſe very great Injuries muſt enſue, if not Death. Hence may be collected the propereſt Methods of treating theſe who are thus Diſeaſed, if there is not a *Mala Conformatio*, or an abſolute Corruption of ſome of the Subſtance of the Lungs; which is firſt to bring away the obſtructed Matter by Pectorals and ſuch Means as have been found to diſcharge this way; and then ſo to harden and reſtore the Conſtitution, that the Perſpirable Matter may be better digeſted for the future, and carried off without any ſuch Stoppage; but becauſe the latter is not practicable with old People, who are much worn out; they muſt be contented only with the Benefit of the former.

A P H. LXXXIII.

Old Age may truly be reckoned a Diſtemper, but it may be long protracted if the Body perſpires well.

A P H. LXXXIV.

Venery deſtroys thoſe who are Ancient, as alſo an actual Coldneſs of the Body, immoderate Drinking, and Eating like young People, Paſſionate Anger, and too much Exerciſe.

EXPLANATION.

All theſe accelerate the Motions of the ſeveral Parts of the Animal Machine, more than the Weakned and decayed Springs of Old Age can admit of, without conſiderable Damage.

A P H. LXXXV.

Old People fail of reaching to a long decriped Old Age, becauſe of the Decay of their Excretory Organs: Whence they diſcharge not ſo much by Urine as they drink, and perſpire leſs than uſual; the only Remedy is to adjuſt, as near as can be, the Evacuations to the Quantities taken in.

EXPLANATION.

In very old People the Muſcles and Solid Parts at the greateſt Diſtances from the Heart and Brain decay firſt, becauſe thoſe two Principal Inſtruments of Motion themſelves grow too weak and languid to propel the proper Fluids into them, and invigorate them in order to the performance of their reſpective Functions; and therefore the proper Diſcharges by them are hindred, before the Stomach loſes its Power of Digeſtion; the only Remedy, or rather Preventive, is a ſparing light Diet, and promoting Evacuation ſometimes by gentle Cathartícks.

APH. LXXXVI.

A total ſtoppage of Perſpiration, not only of the Principal Parts, but alſo of the remoteſt, certainly brings Death: Of the Principal Parts, as the Brain, it produces an Apoplexy; in the Heart, Palpitation, in the Liver too much Blood, in the Womb Suffocation; and in the lower Parts, a Gangreene.

EXPLANATION.

The Diſorders herein mentioned ariſe frequently without any Injury immediately in the Part it ſelf, but from a general hinderance of Perſpiration, and ſeveral other Cauſes, too long here to enter into. It is very plain, that *Sanctorius* was here in the dark, by not being acquainted with the Circulations of the Animal Fluids, and that Mechaniſm by which any particular Part may be Diſtemper'd from a foreign Cauſe.

APH. LXXXVII.

The Suffocations of Women do not proceed from a Preſſure of the Womb againſt the Diaphragm, but from an actual Coldneſs of a corrupted *Semen.*

EXPLANATION.

This is built upon a Miſtake of a *Semen* in Women, which latter Diſcoveries in Anatomy have better informed us about. The Diſtemper here ſpoke of actually ariſes from ſome Irritations and Diſorders of the Nerves in that Part, which by their Communication and Conſent with others, carry the Malady further, as it happens in all Convulſive Caſes.

APH. LXXXVIII.

The Humours of Gouty People, even the moſt thick, are carried off only by Perſpiration.

EXPLANATION.

Becauſe when they are got ſo far into the extream Parts, they are not eaſily brought back into any other Emunctory.

APH. LXXXIX.

Vomiting diverts Urine and Perſpiration.

EXPLANATION.

Becauſe it makes a Revulſion of the Humours, and diverts the uſual ſupply of thoſe Evacuations. But this is to be underſtood only of ſuch Vomiting as ariſes from a Weakneſs and Diſorder of the Stomach, by which it cannot retain its Food, but throws it up again before Digeſtion: For Vomiting may be ſo ordered in ſeveral Caſes as to promote Perſpiration, when it has before been obſtructed. The Muſcles and Fibres of the whole Body are concerned in its Operation, and ſhook with ſuch Force, as to conduce very much in diſlodging whatſoever has been retained, and fixed in the Excretory Paſſages, and this is the Reaſon why it is of ſuch mighty Service in the beginning of a Fever from taking Cold; for if it be adminiſtred upon the firſt Attack, 'tis a great Chance but it breaks the increaſing *Lentor* of the Juices, and expells their Overcharge by Perſpiration and Sweat. Mr. *Fuller* therefore in his *Medicina Gymnaſtica*, with a great deal of Reaſon, places Vomiting amongſt thoſe Exerciſes of the greateſt Efficacy.

A P H. XC.

Frequent turning in Bed, ſo as to exerciſe all the Muſcles by it, weakens the Conſtitution, and leſſens Digeſtion and Perſpiration. The beſt Remedy is reſolutely to keep in the ſame Poſture.

EXPLANATION.

Such reſtleſs Motions keep the Nerves too contracted to admit of that due Perſpiration, which is beſt performed in time of Sleep: Which muſt of neceſſity weaken the Body, by the Retenſion of a ſuperfluous Load. But the Remedy mention'd, I am afraid, is hardly practicable.

A P H. XCI.

When the Knees are actually made warm, the Feet will become ſo too; and ſuch will ſleep well, perſpire plentifully; but make leſs Urine.

EXPLANATION.

The circulating Blood will carry that warmth which is occaſion'd in any particular Part by external means, to all other Parts of the Body, as well as the Feet; and likewiſe ſlacken the Fibres, which by what has been ſaid already, appears to be conducive both to Sleep and Perſpiration; but it leſſens the Quantity uſually diſcharged by Urine, becauſe, as was ſaid before, the Increaſe of one Perſpiration neceſſarily leſſens another, See *Aphor.* LIII. above, and therefore for the ſame Reaſon,

A P H. XCII.

A Looſeneſs may be remov'd by increaſing the Quantity which is to be perſpired, as it often happens in Bathing.

EXPLANATION.

There appears to be a mighty conſent between the *Inteſtines* and the *Outer Skin*, for we always find an increaſed Diſcharge by one, to leſſen that of the other; and nothing is more common than a Looſeneſs upon checking Perſpiration by external Cold, and therefore it muſt needs be a very likely way to remove a Looſeneſs by increaſing Perſpiration, which warm Baths cannot fail to do.

APH. XCIII.

As a Load-ſtone armed with much Steel, and as a larger Veſſel of Wine, keeps its ſtrength beſt; ſo the moſt weighty Bodies better preſerve themſelves in a vigorous Health, than ſuch as are ſunk with Abſtinence.

EXPLANATION.

It was taken notice of before *Aphor.* XXXVI, above, that the larger the Body is in Bulk, *cæteris paribus*, it is the ſtronger; and conſequently better preſerved in a perfect Health, becauſe the better able to reſiſt external Injuries, and rightly to perform the Vital Functions.

As to the ſtrength of a Body, the Author of the *New Theory of Fevers* has demonſtrated in *Lemma* III, That *It is in different Animals of the ſame Species, and at different Times in the ſame Animal, in a Triplicate Proportion of the Quantities of Blood.* And it is certain that the ſtrength of the ſame Animal at all times is as the force of all his Muſcles taken together, which Force is as the Quantity of Blood, and its greater or leſſer Viſcidity: For *Bellini* in his Forty ninth Propoſition, *De Miſſione Sanguinis*, has proved at large, that in an increaſed Quantity of Blood it may be ſo vitiated, as to impair the ſtrength: Therefore in the above-cited Propoſition the Blood is to be taken only in a healthful State; for upon every Diminution of Perſpiration, the Quantity of Blood will be increaſed, but then ſuch increaſe of Blood is ſo far from adding to the ſtrength of the Body that it leſſens it, as *Sanctorius* frequently takes notice, and the Difference lies here; an increaſed Quantity of healthful Blood gives a larger Stock of Animal Spirits to the Solids than it did before, by Dr. *Wanewright*'s *Eighteenth* Propoſition of *Animal Secretion*, before taken notice of; and therefore adds to the ſtrength of the Body: But an increaſed Quantity joined with an increaſed Viſcidity, will leſſen, in Proportion to that Viſcidity, the ſmall ſeparable Parts of the Blood; and conſequently the Secretion of a thin Fluid to be performed in the Brain for the Invigoration of the Solids, will be thereby leſſened, and the Strength impair'd.

A P H. XCIV.

They who Piſs more than they Drink, little or nothing perſpire.

EXPLANATION.

Becauſe the Perſpirable Matter is diverted by Urine. And this may give a Caution to ſuch who are fond of the *Mineral Waters*, and ſuch Courſes as work much by Urine: For 'tis certain that Perſpiration is thereby hinder'd, which upon too long Diſuſe may not be very eaſie to be reſtored to its natural State; for in time, not only the Excretory Paſſages may for want of their uſual Attritions and Impulſes ſubſide, but likewiſe be very much obſtructed by too large an Overcharge of a mineral groſs Matter; which may prove very difficult to remedy: And conſidering Perſpiration is the largeſt Diſcharge, and of the moſt Importance of all the Evacuations for the Preſervation of Health, the greateſt Care poſſible ought to be taken, that it be not interrupted without unavoidable Neceſſity.

A P H. XCV.

Why is Perſpiration hinder'd in intermitting Fevers? Becauſe the peccant Humours are in the Circumference of the Body.

EXPLANATION.

What Cauſe ſoever diſpoſes the Blood to be more Viſcid than Natural, will likewiſe hinder Perſpiration, by obſtructing the cappillary Veſſels and the cutaneous Paſſages; 'tis demonſtrated by Dr. *Wainwright*, Propoſ. 16. of *Animal Secretion*, that ſuch Glands whoſe compounding Arteries are moſt complicated, ſecern the moſt viſcid Matter from the Blood. And by Dr. *James Keil*, on the ſame Subject, *Prop.* 2. 6. and 9. *Pag.* 34, 35. That Corpuſcles, which are the ſloweſt in uniting, have the weakeſt attractive Force, the leaſt Solidity, and the moſt extended Surfaces; but when united they cohere the more ſtrongly, compoſe the moſt viſcid Fluids, and therefore make the moſt viſcid Secretions, and are ſeparated at the greateſt Diſtances from the Heart, where the Sum of the Cavities of the Arteries is greateſt, and the *Impetus* of the Blood ſmalleſt; wherefore in all preternatural Viſcidities of the Blood, the extream Parts are moſtly overcharged with it, and there it adheres until it occaſions Rigours, and afterwards Fevers. Now nothing is more plain, than that the peccant Humours in intermitting Fevers, is the *Lentor* or too great Viſcidity of the Blood; its Cauſes ſee in *Explanat.* to *Aphor.* LXVII. above. But how ſuch a Diſpoſition occaſions intermitting Fevers and Agues, would be of too great a Length here to enter into; I ſhall refer the Reader to Dr. *Jones, De Febribus Intermittentibus*; and for a full and Demonſtrative Account to *Bellini de Febribus, Propoſ.* 18, and 19.

APH. XCVI.

In Dropſies the Water in the *Abdomen* does not paſs away, becauſe it is too groſs and Sizey to perſpire.

EXPLANATION.

Another Reaſon likewiſe may be owing to the ill Conſtitution of the Membranes incloſing it, which at ſuch times muſt needs be flaccid and pulpy, and thereby leſs porous. Their Elaſticity likewiſe being much loſt, there will be wanting thoſe uſual Vibrations which are abſolutely neceſſary for Perſpiration ; the tonick or vibrating Motions of the Membranes being to the included perſpirable Matter, as the Motion of a Sieve to what is deſigned to be ſhook through it : And further, would it not be too tedious here, it might eaſily be proved, that the Membranes themſelves without Motion, are not porous enough to admit thorough them the moſt ſubtile Steams whatſoever, and yet that when moved in ſuch a manner as in a ſound ſtate of Health, by the continual ſhiftings of the Poſitions and Contacts of their conſtituent Fibres, there are Openings alternately made from one Part to another, large enough to let thorough a very groſs Matter : Which cannot but evince the Neceſſity of promoting and maintaining thoſe natural Vibrations of the Solids by proper Exerciſe.

APH. XCVII.

A Collection of hot Humours in any Part ought to be treated with warm Digeſtives, in order to render it perſpirable.

EXPLANATION.

Therefore Care ought to be taken, that in inflammatory Swellings, there be not too much tampering, as is cuſtomary, with cooling Applications, becauſe ſuch will obſtruct the cutaneous Pores, thicken the collected Matter, hinder the breathing of the Part, and increaſe the Inflammation ; unleſs by the ſtrength of Nature, or Purgative Medicines, there be made ſome ſudden Revulſion, which in many Caſes is not very ſafe to try.

APH. XCVIII.

In high Fevers ; Fainting proves ſerviceable, becauſe it helps Sweat and Perſpiration.

EXPLANATION.

In high burning Fevers the Fibres are ſo violently contracted, that the Skin is render'd almoſt hard and impervious like Parchment; at ſuch times therefore Fainting does good, if it can be procured without any violent Means, becauſe it ſo much relaxes the Solids, and gives way to the circulating Juices, as to admit a great deal through the Skin, which ought to have been carried off through other Paſſages; and thereby the Body is both cooled and lightned; and the *Equilibrium* between the contractile Force of the Veſſels, and the Reſiſtance of their circulating Fluids, more eaſily again reſtored. Nothing therefore can be of greater Service in the beginning of thoſe Diſtempers, than to evacuate by Bleeding, or gentle Purgatives, or both.

APH. XCIX.

If the Puncture of a Nerve is ſtopped with glutinous Pultus's or ſuch like Applications, the obſtructed *Ichor* will contract ſuch a ſharpneſs as to bring Convulſions and Death, unleſs the Wound be again opened with ſome Oily Dreſſings.

APH. C.

That Breathing, which in Tumours is promoted by Applications, that are actually and potentially moiſtening, proves ſerviceable; but otherwiſe they degenerate into *Schyrri*, by having only the thinner Parts drawn off, and the thick remaining.

APH. CI.

Any Part obſtructed with Blood, or other Juices, as in Tumours, and even in a Pleuriſy, is not to be cooled, becauſe when the obſtructed Matter is removed, it will cool of it ſelf. See *Aph.* XCVII. above, with the *Explanation*.

A P H. CII.

Hypochondriacal Perſons, are cured by promoting Perſpiration by Bathing, and uſing a moiſt Diet.

EXPLANATION.

There is a vaſt Difference in Hypochondriacal Perſons, as to the Conſtitution of their Solids, and therefore they muſt be very differently treated in order to their Cure. In ſome the Fibres are drawn up by a great deal too ſtraight, and differ not much from *Manaicks*; others have too lax a State of the Solids, eſpecially of the cutaneous Fibres, and is generally owing to too tender a *Regimen*, and wearing too thick Apparel, and Flannel next the Skin, than which nothing is more hurtful. With the former, warm Bathing, and a moiſt ſoft Diet muſt be ſerviceable, becauſe they relax the Fibres, and give free Paſſage for Tranſpiration; the Matter of which when retained, not only irritates the Membranes, and occaſions ſharp Pains; but alſo ſo much diſturbs the orderly Vibrations of the Solids, as to occaſion irregular Motions and Refluxes of the Nervous Fluid towards the Brain, whereby the Repreſentations of external Objects are confuſed, and Fear, Anger, or the like, frequently excited, when there is no juſt Occaſion for ſuch Paſſions. But in the latter ſort, relaxing Methods are hurtful, becauſe the nervous Fluids are too much waſted already by the openneſs of the Pores, the want of which ſpoils very much the Elaſticity of the Solids, occaſions Heavineſs, Flatulencies, and Indigeſtion; and frequently Conſumptions; and upon any ſudden external Cold, Cholick Pains and Diſtenſions of the *Præcordia*, See further, *Aphor.* XII *Sect.* III. The Remedy here is to ſtrengthen, and give a Firmneſs to the Solids, whereby the relaxed Pores may be drawn up, that nothing may paſs which ought not to go off that way, and that the Juices may be digeſted and broke fine enough to perform their ſeveral Offices, and afterwards paſs off by their proper Outlets; and this is beſt obtain'd, by gradually coming into a cold

Regimen, a ſolid drying Food with generous Wine, the uſe of *Subaſtringents*, and moderate Exerciſe.

APH. CIII.

Perſpiration made by Fomenting, upon a full Body, draws more than it diſperſes, as appears by the Caſe of *Simon*.

EXPLANATION.

There will always be the greateſt Derivation of the Fluids, where there is the leaſt Reſiſtance; therefore becauſe Bathing or Fomenting any particular Part at that time relaxes the Solids of that Part, that is, abates their Reſiſtance of the circulating Blood, there muſt neceſſarily crowd into that Part a greater ſtore of Fluids than before; and if ſuch Increaſe exceeds the Quantity drawn out through the Pores by ſuch Bathing, the Collection of Humours in that Part will be increaſed thereby: To prevent which, the beſt way is to abate the Force of the circulating Fluids before-hand, by proper and cooling Evacuations; and therefore ſuch Applications are never ſafe upon a full Habit of Body.

APH. CIV.

Thoſe Bodies which perſpire much inſenſibly, as Children, are neither to be let Blood, or Purged.

EXPLANATION.

But upon any Hindrance of Perſpiration, they have the more need of ſuch Evacuations, becauſe they are the ſooner injured by It.

APH. CV.

Why do Spots ariſe in the Skin? Becauſe the Perſpiration of a malignant *Ichor* is obſtructed.

EXPLANATION.

Whether it be meant here of Scorbutick or Fever Spots, 'tis either way a Miſtake. For the Spots in both are occaſioned by the Blood it ſelf breaking thorough the Extremities of the Veſſels, either by its Thinneſs and Sharpneſs, or by the Acceleration of its Motion; and ſtagnating under the *Cuticula.*

APH. CVI.

Where there is a good Perſpiration, a Gangreene will go off; but if it ſuppurates, the Part will mortifie.

APH. CVII.

The Part affected with a Gangreene periſhes, becauſe the Arteries through too great a Quantity of Blood, ſubſide at their Extremities. The Remedy is to evacuate ſenſibly and inſenſibly.

EXPLANATION.

Whenſoever too great a Quantity of Blood, for want of ſufficient Motion grows thick and Sizey, it may be the Cauſe of the Obſtruction of the ſmall Arterial Branches; but until it grows ſo Sizey, the greater the Quantity is, the greater Impulſe it will make upon the Veſſels or any thing in the way of its Direction, and conſequently is leſs liable to ſtagnate in the ſmall Veſſels.

APH. CVIII.

The moſt groſs Humours in robuſt People, will paſs thorough the narroweſt Paſſages; as it appears in the fat Subſtance that will ſometimes come away by Urine, and the Injections made in the Breaſt upon a Wound; which muſt be by inſenſible Pores.

EXPLANATION.

There is ſomething very extraordinary in the Tonick vibrating Motions of the Membranes. For 'tis very plain that in a Carcaſs they are not pervious, but may be blown up and remain diſtended and hard with the included Air: And yet nothing is more certain, than that in a living Body a great deal is continually ſifted through them, and ſometimes too of a Matter not very fine: Which cannot otherwiſe be accounted for, but by the continual ſhiftings of the Contacts of their conſtituent Fibres, whereby there are openings alternately made from one Part to another, greater or leſſer in Proportion to the ſmartneſs and length of their Vibrations; and hence its no wonder, why in Robuſt Perſons, notwithſtanding the hardneſs of their Membranes, the Matter which they Perſpire is much groſſer, than what will paſs off from finer Conſtitutions, where the Parts are ſofter and more yielding. See back, *Aphor.* XCVI.

APH. CIX.

The Matter which goes off by Steam, is both ſuch as is advantageous to part with, and ſuch as is hurtful; and when the Strength increaſes upon its Waſt after Sleep, 'tis a Sign its Obſtruction would have been very injurious.

EXPLANATION.

Becauſe what is well digeſted and fit to part with, moſtly flies off during Sleep, as appears by ſeveral of the preceding *Aphoriſms*; and the more the Strength is recruited thereby, it is the greater Demonſtration that it would have been very prejudicial, if it had been longer detain'd in the Body.

A P H. CX.

That Perſpiration which is inſenſible, is natural, and a Token of Health; but Sweat is the contrary. For the Reaſon, See *Aphoriſm* XXI. above.

A P H. CXI.

If any part of the Body in Winter is made very cold, the whole will ſo far be affected by it, as to have thereby both Digeſtion and Perſpiration diſturbed.

EXPLANATION.

The partial *Stimulus* upon the Place expoſed to the Cold, will immediately by the communication of one Part with another, be convey'd to the whole, ſo as to render the Fibres more contracted, and conſequently the Pores more ſtreightned; by which Perſpiration will be hinder'd, and Digeſtion interrupted; See above *Explanat.* to *Aphor.* LXVIII.

A P H. CXII.

To ſwim in the Evening is ſafeſt: For in the Morning the Water is colder, and may obſtruct the Pores, and endanger a Fever.

EXPLANATION.

The Danger is not from the greater Cold in the Morning, (as will farther appear in *Explanation* to the following *Aphoriſm*,) but from ſtaying in too long, and the Dampneſs of the Air at that time, which will be apt to hang upon and obſtruct the Pores.

APH. CXIII.

In Summer time to be expoſed to the open Air, will hinder Perſpiration; whence Heavineſs of the Head, and a Diſorder of the whole Body.

EXPLANATION.

A ſmall Increaſe of Cold hinders Perſpiration, and is followed by great Diſorders; whereas in others, a ſudden Senſe of Intenſe Cold, ſo it laſts not long, as in cold Bathing, has the contrary Effects; becauſe a ſmall and gradual Increaſe of Cold by degrees, draws the Nerves ſtraighter, and almoſt inſenſibly leſſens the Excretory Paſſages; but a ſudden intenſe Cold contracts them with ſuch Force and Quickneſs, that by their natural Springs, eſpecially in ſtrong Conſtitutions, they return again with equal Force and Quickneſs, and ſo by repeating ſmarter and more frequent Vibrations, put the Fluids into brisker Motions than before, promote the thinner Secretions, eſpecially that in the Brain, and render the Body more brisk and lightſome.

APH. CXIV.

If a Body has been increaſing in Weight for five or ſix Days together, it is not ſuddenly, but by degrees to be drawn off again; for obſtinate Faſting injures the Stomach, Brain and Heart, and ſometimes the whole Conſtitution.

EXPLANATION.

Although a Body may be increaſed or leſſened in its Bulk very conſiderably by Degrees, without much Injury; yet a ſudden Change ſo alters the Contractions of the Solids, and deſtroys that *Equilibrium* which is neceſſary to a healthful State, that it is a great chance if it is not attended with Conſequences, not eaſily to be remov'd. About which conſult *Bellini de Miſſione Sanguinis*, where this whole Matter is ſet in a clear Light. Where therefore any Quantity is either to be added or taken away, regard ought to be had to the time in which ſuch Increaſe or Decreaſe has been made, and the Means uſed to bring it to its ſettled Standard, proportioned accordingly.

A P H. CXV.

In Autumn the Weight of the Body increaſes; which, if it be beyond a healthful Standard, will produce Tertians and putrid Fevers.

EXPLANATION.

It has frequently been taken notice of before, as well as in the immediately preceding, that a Body is capable of very different Weights without Prejudice, eſpecially young People; but that in every Conſtitution they have their Bounds, which cannot be exceeded without falling into ſome Diſtemper. In Autumn the Body is rendered heavier by the gradual Increaſe of Cold, leſſening the Quantity perſpired; and this retained Matter is very apt to ſtagnate in the capillary Arteries, increaſe the Quantity of Blood, and occaſion Fevers, as in *Aphor.* XLVI. above, with its *Explanation:* But if upon the firſt Attack it can be diſlodg'd, and broke ſmall enough to paſs out by Sweat, it only produces Agues and intermitting Fevers; otherwiſe, by its long continuance, it will be apt to degenerate into a State nearer to that of Corruption, and produce what are commonly called Putrid Fevers. See further, *Aphoriſm* XLI, XLVIII, and XLIX. *Section* II.

A P H. CXVI.

Extream cold Things in acute Fevers, unleſs they ſoon grow hot, are fatal, by hindering all Perſpiration.

EXPLANATION.

A ſudden Chillineſs in ſuch Caſes occaſioned by too cold Things, unleſs the natural Heat ſoon overcomes it, produces a total Stagnation, and Death.

APH. CXVII.

Nothing is more hurtful to Malignant Ulcers, than thoſe things which hinder Perſpiration, as Suet, Oil, and Wax.

EXPLANATION.

The Dreſſings therefore in ſuch Caſes ought to be of Vinous Spirits and warm Detergents.

APH. CXVIII.

A Quotidian only of the intermitting Fevers, is attended with Danger: Becauſe Phlegmatick Humours hinder Perſpiration moſt.

EXPLANATION.

By Phlegm here is to be underſtood, that viſcous Matter which is produced by the hinderance of Perſpiration, and lodged in the Extremities of the Veſſels; and this abounds in all Intermitting Fevers, but moſt in a Quotidian, as appears by the frequent return of the Fits; and therefore there is the more Danger of its changing into a continued Fever, of which no Body can foreſee the Conſequence.

APH. CXIX.

A ſtoppage of Perſpiration about the Neck, occaſions a Numneſs of the Head; as likewiſe does the being expoſed to Winds and Rain.

APH. CXX.

Nothing more prevents a Corruption of the Humours, than plentiful *Ventillation* ; not only by that which is drawn in by the Lungs, but by what is drawn in thorough the imperceptible Pores.

EXPLANATION.

There is nothing undoubtedly of more Importance to the Conſtitution, than Reſpiration by the Lungs; but as to any ingreſs and return of Air, by the cutaneous Pores, in the manner herein hinted at, I do not underſtand.

APH. CXXI.

Refrigeratives in acute Diſtempers bring Death, by deſtroying Perſpiration, as in the Caſe of *Hermocrates*. See *Aphor.* CXVI. above.

APH. CXXII.

After Bathing the cutaneous Paſſages are leſſen'd by anointing with Oyl, on purpoſe that there might not be made too great a Waſt of the alimentary Moiſture. But it is therefore to be avoided in dangerous Caſes, becauſe it cloſes the Pores.

EXPLANATION.

It was undoubtedly for this Reaſon, that the Ancients accuſtomed themſelves to anointing with Oyl after warm Bathing, and certainly with Advantage: But in ſuch Caſes, where a large Perſpiration is neceſſary, it is not ſafe to uſe it.

APH. CXXIII.

A Perſon may happen upon ſuch a way of Living, even when he takes no care about it, as may preſerve him to a great old Age.

EXPLANATION.

Which although it may and does ſometimes happen, yet a wiſe Man that has any regard to his own Happineſs in this World, or that of his Poſterity after him, will hardly run ſuch a Riſque, but always employ his greateſt Care about that which is ſo conducive to it, as is a good State of Health.

APH. CXXIV.

The *Midriff* by Contraction enlarges the Capacity of the Breaſt, and upon that Dilatation Inſpiration is made; and upon its Relaxation the Breaſt is ſtraightned, upon which the Air is again forced out.

EXPLANATION.

This will appear very plain, when we conſider the Structure of this Part. The *Diaphragm* or *Midriff* in its natural ſituation is very convex on the upper Side next the Lungs, and concave on the other towards the lower Belly: Therefore to put it in a State of Contraction, that is, ſhorten its conſtituent Fibres, as far as they will admit of, muſt neceſſarily bring it to a *Plain* on both Sides, by which means the Cavity of the Breaſt will be much enlarged, and thereby the Lungs diſtended with freſh Air, forcing it ſelf into them by its Weight and Elaſticity, which is computed to be equal to a Hundred Pound Weight: And again upon the *Diaphragms* relaxing to its natural State, the Breaſt becomes leſs capacious, upon which the Air juſt before received into the Lungs, is forced out again. But although the *Diaphragm* in Expiration is in a State of Relaxation, yet its being ſo, is only the Effect of a joint Contraction of thoſe Muſcles which are allotted for that Purpoſe; and as *Action* and *Reaction* are always equal, ſo the joint Contractions of thoſe Muſcles, muſt be equal to that Weight, by which the Air was forced into the Lungs, *viz.* a Hundred Pound: For a particular Calculation of which, See Dr. *James Keil, of Animal Secretion, Pag.* 24, 25.

APH. CXXV.

The Sphincter of the Bladder by Contraction ſhuts it, and keeps in the Urine: But by Relaxing, opens it, and lets it out.

Of the PLAGUE.

APH. CXXVI.

Whatſoever is infected with the PLAGUE that Infection will be propagated, as long as its proximate and remote Cauſes remain; but either of them being taken away, the Malignancy ceaſes, as the Motion of a Clock upon the loſs of one of its Wheels.

EXPLANATION.

How many Cauſes may concur to propagate the Infection of a Plague, cannot eaſily be determined; but whatſoever they be, undoubtedly its Violence will ceaſe as ſoon as they are removed.

APH. CXXVII.

The Plague is communicated not by any immediate Contact, but either by drawing in Infectious Air, or the Steams of tainted Furniture; and it is thus. The Vital Spirits are firſt infected by the Air, and from the infected Spirits the Blood is coagulated, which produces black Spots, *Carbuncles*, and *Buboes*; and if not ſufficiently diſcharged, occaſion Death; but if it be all thrown out, they eſcape.

EXPLANATION.

Authors abound who have writ of Peſtilential Diſeaſes, and the manner of their Attacks; but I believe there can no where be found ſo rational an Account, as in Dr. *Mead's Fifth Eſſay of Venomous Exhalations, &c.* in his *Account of Poiſons*;

Poiſons; and indeed throughout that whole Book, the Reader may be inſtructed, in that Mechanical Procedure, by which great Alterations are brought about in the Animal Fluids, by very minute and unheeded Cauſes.

APH. CXXVIII.

If the whole Infection be forced out into *Buboes* and *Carbuncles*, it is well; otherwiſe fatal.

APH. CXXIX.

The Plague is not produced in us, but ariſes from external Cauſes; as is manifeſt from ſuch who are ſhut up in *Cloyſters*.

EXPLANATION.

It is agreed on all Hands, that ſuch Diſeaſes have their Riſe from, and are propagated by a Diſtemperature of the Air; and it plainly appears to be ſo, by its affecting more or leſs all Kinds of living Creatures.

APH. CXXX.

All do not die of a Plague, but about a third Part, which may be known by thoſe who view the dead Bodies.

APH. CXXXI.

They who think black Spots and *Carbuncles* denote an Aduſtion of the Humours, are miſtaken; for very often old People, both externally and internally cold, and without any Fever, in the Space of two Days go off with the ſame Symptomes, from a Stagnation of the Blood.

APH. CXXXII.

If part of the Blood by the Infection of the Vital Spirits coagulates, and be wholly diſcharged by *Buboes* and *Carbuncles*, they recover; but otherwiſe they die, as in the black Spots.

APH. CXXXIII.

Where the *Buboes* and *Carbuncles* are opened, and the tainted Matter wholly diſcharged, They recover; but otherwiſe they die.

EXPLANATION.

As to the three preceding they are much the ſame, what is meant by Aduſtion although a very common Term, is not eaſe to be underſtood; but by the Coagulations of the Blood made by the infected Spirit; it is plain from what has gone before, that whatever alters the Contractions of the Veſſels, will likewiſe alter the Textures and Cohæſions of the Blood, by giving it a greater or leſſer degree of Motion than it had before, Where therefore the Spirits are diſtemper'd, that is, when the Solids are not duly ſupplied with that peculiar Fluid, which is neceſſary to maintain their Elaſticity, their Contractions will be changed, and the Blood conſequently alter'd, in ſuch a manner as may diſpoſe its Parts to more forceable Attractions and Cohæſions, by which ſuch Grumes and Stagnations are generated; but if the Conſtitution is ſtrong enough to keep on the Circulations for ſome time, they will gradually be thrown upon ſome particular Part, and collected in a conſiderable Quantity, ſo as to form thoſe Tumours; and in ſuch there is much the greateſt likelyhood of Recovery, becauſe by thoſe Diſcharges the Blood will the ſooner recover its natural Conſtitution: Whereas, when it is not ſo thrown off, it is a great Chance but it induces a total Stagnation, which is Death.

A P H. CXXXIV.

There are two ways of checking a Peſtilence; one is by removing thoſe who are ſound to diſtant Places, and the other by giving room to the Infected to Air themſelves; the latter likewiſe is to be done two Ways; by not confining the Infected to Places diſagreeable to them; and by not burning their Houſhold-Stuff.

A P H. CXXXV.

They are ſooneſt infected who have weak Lungs; they who have ſound ones the contrary: And it is a ſign of weak Lungs, when upon drawing in the Breath with the greateſt force, the ſtrength of the Pulſe abates.

EXPLANATION.

Becauſe it is ſuppoſed that the Infection is chiefly taken from the Air in Breathing; although perhaps ſome noxious *Effluvia* may inſinuate themſelves into the Blood by the cutaneous Pores, as *Bellini* endeavours to prove, *Prop.* 27. *De Febribus*; the weaker therefore the Lungs are, the leſs able are they to reſiſt the mixture of the infectious Particles with the Blood, drawn in from the Air, or break them ſufficiently to alter their Figures, and deſtroy their Efficacy upon it. And the reaſon why the Pulſe is weakned, where the Lungs are weak upon drawing in a large Quantity of Air at once, is, becauſe ſuch an Additional Weight, preſſes ſo much upon the Blood-Veſſels in the Lungs, that they cannot thorough the decay of their Springs, repeat their Pulſations with the uſual Quickneſs and Strength, and conſequently the Pulſe at that time muſt be much abated.

APH. CXXXVI.

The Peſtilence is not as a Fire which increaſes according to its ſupply of Fuel: For the *Pabulum* of the former remaining the ſame, it will decreaſe.

EXPLANATION.

I cannot well underſtand here what is meant by the *Pabulum*, unleſs it be an infectious Air; which if it is, the Propoſition is not true; for while that continues, the Diſeaſe will ſo too.

APH. CXXXVII.

Peſtilential Steams are carried away by Currents of Wind, but not at all by the lucid Part of the Atmoſphere.

EXPLANATION.

It is confirm'd by divers Inſtances of the removal of the Seat of the Plague by Winds, from one Country to another, according to the Winds Courſe; which ſeems to conclude, that the Infection is convey'd by the groſſer part of the Air, becauſe it is liable to be removed by ſuch Motions, but not at all affected by thoſe finer Rays which produce Light.

APH. CXXXVIII.

They who ſeek for any other Remedy for the Plague, than flying from the Place infected, are either ſuch as are very ignorant, or elſe wait for ſome private Advantages.

EXPLANATION.

Sanctorius ſeems to have been an utter Enemy to all Kinds of Medicine in this Diſtemper, as appears further by the two laſt *Aphoriſms* of this *Section*, but unjuſtly; for by

Experience a great many have been found of wonderful Service both by way of Prevention and Cure, when adminiſtred by a skilful Hand.

A P H. CXXXIX.

Very few of the Wealthier People are cured by Medicines, but a great many of the poorer Sort recover without them.

A P H. CXL.

Why does the PLAGUE continue long?

Firſt, Becauſe while it rages, Perſons air their tainted Furniture, which being ſtole by Thieves ſpreads the Infection, whereas when the *Plague* is abated they would not in themſelves be infectious; otherwiſe the *Plague* would continue for ever.

Secondly, Becauſe the infected being expelled the Town, others do not take care to Air themſelves enough, by which the Infection ſpreads.

Thirdly, Becauſe the People are not forbid to aſſemble together in the Churches, for at ſuch time they ought to perform their Devotions in the open Air.

Fourthly, Becauſe they chooſe foreign *Surgeons*, who the greater the *Plague* is, are the better pleaſed.

Fifthly, Becauſe they do not remove the Infected into other Houſes, ſeparate from thoſe who are well.

Sixthly, Becauſe they uſe internal Medicines in the *Plague*, whereas there are none but what are hurtful.

Seventhly, Becauſe they ſuffer the buying and ſelling of Poultry, which by being handled by infected Perſons communicate the Contagion to thoſe who are well.

EXPLANATION.

All theſe Reaſons together, I believe will fall ſhort of giving full Satisfaction for the long continuance of ſuch Contagions. Burning Houſhold-Stuff or any thing elſe at ſuch times, although belonging to infected Perſons, has been always found of Service, and not to have any Tendency at all to propagate the Diſeaſe. The *Sixth*, is owing to his particular Prejudice againſt Medicine in ſuch Diſtempers, as appears above: But it is well known, that there are abundance of Medicines of ſingular uſe at ſuch times.

Medicina Statica.

SECT. II.

Of AIR *and* WATER.

APHORISM I.

COLD Air and cold Bathing, give a greater warmth to ſtrong Conſtitutions, and by removing what is ſuperfluous, render them lighter; but they cool weak Perſons, by overcoming their natural Heat, and thereby alſo render them heavier.

EXPLANATION.

A Thorough and clear Underſtanding of the Contents of this *Aphoriſm*, is of very great Concern and Importance to every one who would be acquainted with the true Cauſes of Diſtempers and their Cures, and what is abſolutely neceſſary thereunto, the *Mechaniſm* of a *Human Body*. See the *Explanations* to *Aphor*. LXVIII, XCVI. and CXIII. *Section* I.

A P H. II.

A warm Air and Baths, actually warm, unleſs undigeſted Humours prevent it, promote Perſpiration, cool the *Viſcera*, and render the Body lighter.

A P H.

EXPLANATION.

Any moderate external Warmth relaxes the Solids and opens the cutaneous Pores, and gives greater Liberty thereby for the Perſpirable Matter to paſs off; but if the Humours are crude, and not ſufficiently digeſted, that is, if they are groſs, and not broke ſmall enough; that eaſie Relaxation which otherwiſe would give them the more room to fly off, will only occaſion a greater Derivation of them towards the Circumference, where, by their Groſſneſs and Indigeſtion, they will be obſtructed in the capillary Veſſels; and ſuch an Obſtruction by a continual ſupply from within, will increaſe, until the Solids are ſtimulated to make larger ſenſible Evacuations, or raiſe a Fever. But where ſuch indigeſted Matter does not hinder, the Cauſes above-mentioned will much increaſe Perſpiration, and of Conſequence lighten and cool the Body.

APH. III.

The external Air which paſſes through the Arteries into the Body, may render the Body heavier or lighter; lighter, if it be ſubtile and warm; and heavier, when thick and moiſt.

EXPLANATION.

A warm Air will promote Perſpiration, for the Reaſons given in the preceding *Aphoriſm*, and of courſe lighten the Body: And likewiſe will a cold and moiſt Air obſtruct the Perſpirable Matter, and render it heavier; but that the Air paſſes into the Body by the ways herein mentioned, *viz.* By the Arteries, muſt be a miſtake, and owing to a want of the Knowledge of the Circulation, which was not known in *Sanctorius* his Time. How the various Temperatures of the Air alter and affect the Body, may be collected from ſeveral of the Explanations of the preceding *Section*, and will further appear hereafter under their proper Heads, conſult alſo Dr. *Wainwright* of the *Non-naturals*.

APH. IV.

What the Weight of the Air is, may be collected from ſeveral Kinds of Salt dried firſt in the warm Sun, and then expoſed in the Night to the open Air. *Secondly*, From the greater increaſe of Cold as to our Senſe of it, than what is diſcernable in the *Weather-Glaſs*. For the Meaſure of its Coldneſs to us is its Moiſture and Weight; *Thirdly*, From the greater or leſſer Warpings of thin Boards, eſpecially if they be of *Pear-Tree*. *Fourthly*, From the Contractions of *Lute-ſtrings* and *Hemp Cord*.

EXPLANATION.

Moſt of the Experiments here, have reſpect only to the Moiſture and Dryneſs of the Air, the Atmoſpherical Preſſure, and its Elaſticity were, if not altogether, yet very much unknown in the Time of *Sanctorius*; and therefore it is no great wonder to find the Properties of it ſo obſcurely mention'd here; eſpecially when we conſider the vaſt Improvement in Experiments of this Kind, but ſince Mr. *Boyle*'s Time, which are ſo manifeſt and convincing. and indeed now ſo common to be met with, that he muſt be a great Stranger both to Men and Books, who wants any Informations therein.

APH. V.

The Weight of Water may eaſily be known by weighing heavy Bodies in it; for that is the lighteſt, and conſequently moſt wholſome, in which a Body weighs heavieſt: But that Water in which ſuch a Body weighs leſs, is heavier, and not ſo wholſome.

EXPLANATION.

Nothing likewiſe is now more common, than to learn the Specifick Weight of any Liquors by weighing heavy Bodies in them; which is well known to all ſuch who try it, to be a moſt certain and infallible Rule. And this is done with Scales, which are commonly ſold for that purpoſe, by the Name of *Hydroſtatical Scales.* That the lighter Water is, it is the more ſuitable to the Conſtitution, the Reaſon is plain, becauſe as it anſwers all the Purpoſes of diluting, and the like as well as any other, if not better, it alſo paſſes afterwards the Straineries of the Body better: For the heavier the Water is, it muſt needs be the more charged with greater Quantities of groſs Mineral Particles, which will not only render it more unfit to get thorough the fineſt Veſſels and Orifices of the Glands, but likewiſe be very apt to form Stony Concretions in the Body, by the Attractions and Adheſions of thoſe Mineral Salts with which it is impregnated. It might therefore be of much Service to ſuch who are ſubject to the Gravel and Stone, or any Diſeaſes from Obſtructions, to take the utmoſt Care about their Water, and always be ſure to uſe that which is lighteſt. This further affords a very good Hint to ſuch, to uſe as much as poſſible, a ſoft lubricating Diet; for by ſuch means thoſe Salts would in a great meaſure be ſheathed, and as the conſtituent Parts of an Heterogenius Fluid, more or leſs obey their Attractive Powers, that is, are more or leſs attracted by one another, as they meet with greater or leſſer Reſiſtances from the Fluid they make a Part of; ſo they would be prevented thereby from running into thoſe Contacts and Cohæſions, in order to form thoſe little Petrefactions in the Bladder and Kidnies.

APH. VI.

A heavy Water, and a foggy heavy Air, convert the Perſpirable Matter into an *Ichor*; which being obſtructed and not again reſolved, is apt to bring the whole Body into an ill Habit.

EXPLANATION.

What will certainly be the Conſequences of an obſtructed perſpirable Matter, none can foretel, it being liable to be altered by ſo many unheeded Cauſes, and afterwards thrown out ſometimes by one and ſometimes by other Emmunctories, according as the Conſtitution at that time may be diſpoſed to manage it.

APH. VII.

In a cold wholſome Air, Perſpiration may be hinder'd; but if the Fibres likewiſe thereby obtain a greater Firmneſs and Strength, the Weight of the retained Matter, will not be injurious or percievable.

EXPLANATION.

From *Aphoriſm* XXVIII. and XXIX. *Section* I. it already appears, that the Weight of the Body, as to the Perception the Perſon has of it, is as the Strength and Vigour of the Solids; where therefore the Fluids are increaſed by any Cauſe whatſoever, and there be at the ſame time a proportionate Addition to the Strength of the Solids; ſuch an addional increaſe of the Fluids will not be perceived, or be prejudicial. But,

APH. VIII.

In a ſoggy Air, Perſpiration is leſſen'd; the Pores are obſtructed, and the Fibres weaken'd and not rendered more firm, and the Weight of the retained Matter is both percievable and injurious.

EXPLANATION.

Why a cold wholſom Air, (by which is to be underſtood, that which is cold and clear,) ſhould hinder Perſpiration, and yet ſtrengthen the Body, and a foggy cold Air alſo hinder Perſpiration but weaken the Body ; is a Difficulty much like that in the LXVIIIth *Aphoriſm*, *Section* I. Where it is ſaid, that External Cold hinders Perſpiration in weak People, but encreaſes it in the Robuſt ; and ſolvable only by the ſame way of Reaſoning. For the Concentration, and Diſſipation of the *Vital Heat*, ſo much talk'd of, is ſaying nothing, becauſe they are Terms which convey no Idea of any Mechanical Procedure, by which only all Phyſical Agents operate, and their Effects are to be accounted for.

There is one Enquiry, which if perſued with Penetration and Judgment, would let in a ſurprizing Light, to the true Mechaniſm of the Solids of a Human Body ; and that is concerning the Compoſition and Texture of a *Diſtractile Fibre* ; ſo far I mean, as to find out what Order and Texture of Parts will ſerve to make up ſuch a Thread, as is capable of being drawn out to a conſiderable Length without breaking ; and that when the force which ſo extended it, is removed, will reſtore or contract it ſelf again to its former Dimenſions. *Bellini* has furniſhed us with a very good Hint in this Affair, in his *Opuſcula*, *Prop.* 51. *de Villo contractili* ; and has gone a little way in the following Propoſition towards its Application. It is to be wiſh'd, that, that great Maſter of Mechanical Reaſoning, (who perhaps as to the Services done to the Phyſical World, by putting Men upon that only way of Thinking, by which any Knowledge therein is attainable, has not had his equal) would have carried his Theory ſomething further, and been more particular. But from what he has ſaid in the Place above-mentioned, *de Stimulis*, and before upon the ſame Head, in his Propoſitions *de Miſſione Sanguinis*, any Perſon who is rightly turned to that way of Thinking, with Pains and Induſtry may do it himſelf. It would be of an unpardonable Length to meddle with it here, although I have had ſome Thoughts thereupon, and ſo much to the Satisfaction of my own Mind, that I believe I ſhall hardly be able to deny ny my ſelf the Pleaſure of drawing them up into ſome Order, and preſenting them to the World at another time. For the preſent therefore, I can only refer the Reader to the above-mentioned Places of *Bellini*, and to the *Explanation* to the LXVIIIth *Aphor. Sect.* I.

A P H. IX.

If in a warm Seaſon a cold Day happens, in the Space of that Day, ſuppoſing the way of Living to be the ſame, about a third Part of the Perſpirable Matter will be obſtructed ; which unleſs it be diverted by ſome of the Senſible Evacuations, will be diſpoſed to Putrefaction, and diſorder the whole Conſtitution.

EXPLANATION.

A ſudden Change of Weather from Hot to Cold, cannot but very much affect and diſorder the Conſtitution, by ſuddenly drawing up and ſtraightning the cutaneous Pores ; whereupon the Perſpirable Matter will in a great meaſure be detained, and occaſion Fevers, unleſs by the Strength of the Conſtitution it be ſoon thrown off by an increaſe of ſome of the Senſible Evacuations. And this is the Reaſon, why frequently upon Change of Weather, at the ſame time, we meet with a great many together taken with *Diarrhœa*'s, and ſome of them attended with Vomitings, and very ill Symptoms ; or elſe for want of ſuch Diſcharges in Time, with Fevers.

A P H. X.

The Obſtruction of the Perſpirable Matter which happens in weak People, upon a ſudden Cold, is much worſe than that which is made gradually.

EXPLANATION.

All Changes of the Conſtitution whatſoever, are much more eaſily effected by Degrees than of a ſudden; becauſe let it be to either Exceſs, Fulneſs, or Want, the Solids will ſtretch or draw up inſenſibly by a gradual Procedure; whereas by a ſudden Change into either Exceſs, their Contractions muſt needs be ſo much alter'd, as cannot ſpeedily be done without ſenſibly diſturbing all the Secretions; and therefore the weaker a Body is, the ſecretory Organs will be leſs able to diſcharge a greater Quantity ſuddenly thrown upon them, than what it is by a gradual increaſe.

APH. XI.

Being expoſed to a cold Air after Heat, by leaving off Garments, a Body may perſpire thereby in the Space of a whole Day about two Pounds the leſs, and yet perceive no harm from it.

EXPLANATION.

But this can be only in ſtrong Conſtitutions, and the Robuſt, who afterwards will be able to throw off that additional Load without receiving any Damage thereby; their Solids being only invigorated by ſuch an increaſe of Cold will vibrate the quicker and ſtronger, and thereby ſoon break the detained Matter, and force it away; but the Experiment therefore is not ſafe to be tryed by any other.

APH.

APH. XII.

A delightful and moderately cool Air, does more Harm to thoſe who are Hot, than exceſſive cold Air or Water: For it does not render the Body lighter, but obſtructs Perſpiration, and weakens it. Whereas the other does obſtruct, but at the ſame time ſtrengthens it, and thereby renders it more lightſome.

EXPLANATION.

The Diſtinction herein again made between the Obſtruction of Perſpiration by a moderate and gradual Cold, and that made by what is ſudden and intenſe, as it has before, ſo it can never be too much inculcated, becauſe there is ſo much turns upon a true Knowledge of its Cauſes; See, as before, *Aphoriſm* CXIII. *Sect.* I. This alſo will give us a good Reaſon wherewith to encounter the Prejudices of thoſe, who in uſing the cold Bath, are very fearful of going in when they are Hot, whereas in ſeveral Caſes it might be proved, to be the moſt ſeaſonable Time.

APH. XIII.

Thoſe ill Qualities in the Air and Waters, which diſpoſe to a malignant Putrefaction, are ſuch that their Increaſe is ſeldom taken notice of; as if their peculiar Natures were ſuch as to render the Solids ſtronger, as it happens to *Manaicks.*

EXPLANATION.

The firſt Impreſſions of a malignant Diſtemper are made frequently by ſuch ſmall and imperceptible Agents, that there is no need, as in this *Aphoriſm,* to have Recourſe to any additional Strength in the Solids, to account for their being ſo little taken notice of for a long time; for very great and fatal Alterations may be made upon the Juices, by Cauſes not ſo much at firſt perceivable by their Bulk, as afterwards by their Tragical Conſequences. How and in what manner very ſmall, and at firſt unheeded Inſtruments may produce ſuch great Changes in the Animal Fluids, has been demonſtrated with a great deal of clearneſs and ſtrength, by that ſo often cited great Phyſician, *Bellini de Stimulis*, by *Baglivi* in his Hiſtory of the *Tarantula*, and Dr. *Mead* in his much eſteemed Book of *Poiſons*; as for the Solids of *Manaicks* being render'd ſtronger by any Matter which is the Efficient Cauſe of their Diſtemper, as here inſinuated, is a Miſtake; for the ſtraitneſs and hardneſs of their Fibres ſeems much rather the prime Cauſe, than the Effect. Becauſe we find ſuch People bear large Evacuations with Advantage, and ~~are~~ much better by ſuch means as relax the Solids; for to evacuate, that is to leſſen the Quantity of the Fluids, is the ſame as to relax, or enlarge the Capacities of the Solids: And on all Hands 'tis agreed, That their Diſtemper is remitted or enflamed as their Fibres are more or leſs harden'd or let down, of which *Baglivi* takes notice in ſeveral Places of his *Specimen de Fibra Motrice & Morboſa*, and obſerves in the Diſſection of ſome *Manaical* Perſons, the *Dura Mater* to have been harden'd to a very great degree, and to be almoſt dry. And upon this Account it is, that they are no ways affected by the Alterations of the external Air, their Solids being drawn up ſo very ſtraight, as not without great Difficulty to be made ſenſible of ſuch Changes.

APH. XIV.

Swimming in cold Water after violent Exerciſe is very delightful, but fatal; for nothing is more deſtructive than Extreams are to one another.

EXPLANATION.

By violent Exerciſe the Fluids will be very much broke, and a great deal of Perſpirable Matter made ready for Expulſion; and the Solids alſo ſo very tenſe and ſtrait, that upon ſwimming immediately afterwards, if the Water is not exceſſively cold, they will yield and relax in Compariſon to that Contraction which the violent Exerciſe had before drawn them up to. And this Relaxation at the ſame time joyned with the Chillineſs from the Water, will occaſion ſuch a Stagnation of the Fluids upon a double Account, as without a great deal of Difficulty will hardly be removed, if it does not occaſion immediate Death.

APH. XV.

There are ſeveral Cauſes which gradually diſtemper the *Viſcera*, without any ſenſible increaſe of Weight or Uneaſineſs.

EXPLANATION.

As in ſome Conſtitutions not fitted for ſuch ways of Living, the frequent ſupping of *Coffee*, Tippling of hot *Spirituous Liquors*, Smoaking *Tobacco*, and ſeveral other Things too long and tedious to enumerate, which are often found by Degrees to ſteal upon ſome Conſtitutions, and by injuring ſome particular Part or Secretion, to induce a general Diſorder.

APH. XVI.

Violent Exerciſe in a pleaſant Southern Air, is often deſtructive: For the Air hinders Perſpiration, and the Exerciſe inflames the Humours.

EXPLANATION.

The Exerciſe by breaking and dividing the Fluids into ſmaller Parts, makes them take up more Room than before, as has been proved in *Explanat.* to *Aphor. Sect.* I. where therefore this is done, and at the ſame time Perſpiration by any Cauſe whatſoever hinder'd, there muſt needs be a ſtrange Alteration in the *Equilibrium* between the force of the Contractile Solids, and the Reſiſtances of the circulating Fluids; and ſo far perhaps ſometimes that the Preſſure or Expanſion of the Fluid, (which is the ſame as I ſuppoſe *Sanctorius* here means by an Inflammation of the Humours) againſt the diſtractile Veſſels will be ſo great, as to hinder their Powers of Contraction, by which their *Tone* muſt ſoon be loſt, and conſequently a Ceſſation of the Motion of the Fluids will follow thereupon. For a total Stagnation may be induced, as ſoon by an overſtretch of the Veſſels, whereby they cannot contract again, as by their ſubſiding for want of a due Impulſe of the Fluids to diſtract and raiſe them; and on either Hand it is equally fatal. Where therefore by the Cauſes herein mentioned, a Body is brought into this Hazard; one Step abſolutely neceſſary towards a Remedy is immediate Evacuation, and relaxing the Solids ſo, as if poſſible, to raiſe a Breathing and a Diſcharge by the Skin, in effecting which, all *Stimuli* are induſtriouſly to be avoided, as *Bliſters*, unleſs towards the latter End, when frequently the Caſe is ſo alter'd, that the Fluids grow viſcid and ſtagnate thorough the decayed Contractions of the Solids, and may therefore then want a Spur; but at firſt ſuch Means increaſe the Cauſe. And this is chiefly the Caſe of thoſe we call *Inflammatory Fevers*.

APH. XVII.

When too cool an Air is diſcerned after Supper, the Perſpiration of thoſe Parts which are uncovered with Cloaths, will be obſtructed: And the next Day at Night, in a great many will occaſion a Heavineſs and Pain of the Head.

EXPLANATION.

The Reaſon why taking Cold is frequently attended with Pain and Heavineſs of the Head, is becauſe from the *Meninges* or Coats of the Brain, the Solids of the whole Body have their Riſe and Invigoration: And as the hindrance of Perſpiration neceſſarily increaſes the Quantity and Weight of the Fluids, the Senſe and Uneaſineſs occaſion'd by ſuch an Increaſe or Addition, muſt needs be firſt felt in the Head, upon the Account of a greater Impulſe of Blood upon thoſe Membranes, as well as by the harder Task they have thereupon, to enable all the Solids to carry on and manage ſuch an Additional Weight.

A P H. XVIII.

To be carried ſuddenly from a hot into a cold Air, is hurtful ; becauſe the Body is thereby rendered heavier than it ought to be : And likewiſe the ſame, to be removed from a cold into a hot Air ; becauſe it is thereby weaken'd.

EXPLANATION.

The former Part abundantly appears, from what has been ſaid already ; and the latter is true, becauſe a ſudden Removal into a hot Air ſlackens the Solids, in whoſe due Contractions and Firmneſs, Strength conſiſts.

A P H. XIX.

Weak Perſons convert the obſtructed Perſpirable Matter into Urine moſt in Winter-time, but the ſtrong moſt in Summer.

EXPLANATION.

Becauſe a weak Conſtitution, although it is not able to digeſt the obſtructed Perſpirable Matter, ſufficient to paſs it off the moſt natural and proper way, by an increaſed Perſpiration ; yet in Winter-time, the Solids may be harden'd and invigorated ſo much as to break it ſmall enough to take its Courſe through more open Paſſages, *viz.* The Kidnies and Bladder; whereas in Summer, ſuch Perſons would not have Strength enough to fit it for any Evacuation ; and therefore unleſs it be diverted, and brought back by a *Diarrhœa*, they muſt fall into Fevers. But the Solids of even the moſt Robuſt in Summer-time may be ſo far relaxed and weaken'd by the Heat of the Seaſon, as not to grind the obſtructed Matter ſmall enough for

Perſpiration, and therefore be under a neceſſity of diſpatching it by the next moſt convenient Outlet, which is by Urine; although the great Strength and Vigour of ſuch Perſons in a cold Winter Air, might without any great Difficulty, wear away a conſiderable Quantity of obſtructed Matter by its proper Paſſages, *viz.* the cutaneous Glands.

APH. XX.

Any Draught of Wind hinders Perſpiration, and renders the Body heavier and hotter.

APH. XXI.

A cool Wind always hinders Perſpiration, and is hurtful, but moſt to the Head; becauſe it is moſt expoſed to it.

EXPLANATION.

That a Draught of Wind upon any particular Part, or a cool Air upon the whole Body, does hinder Perſpiration, and more particularly diſcompoſe the Head, appears already from a great many of the foregoing *Aphoriſms*, as well as from the XVIIth of this *Section*; and how ſuch Cauſes alſo render the Body hotter, that is, how they raiſe a Fever, may be ſeen explained at large in the *Explanation* to *Aphoriſm*, XLVI. *Section* I.

APH. XXII.

Of all the Seaſons of the Year, the dryeſt are moſt Healthful; becauſe they render Bodies lighter.

EXPLANATION.

That is, in dry Seaſons, there is always a freer Perſpiration, than in a wet damp Air, and conſequently more Health. In a dry clear Air, the Perſpirable Matter is beſt diſcharged; becauſe the Skin is kept both dryer and harder than in wet Seaſons, whereby there is both the freer Paſſage for it, and more liberty for it to exhale and fly off afterwards, whereas in wet damp Weather the Skin is moiſten'd by the external Air, and the Pores foul and clogged with the groſs Particles hanging upon it, and leſs liberty left for the Perſpirable Matter to get off.

APH. XXIII.

Temperate Perſons weigh in Summer time about three Pounds leſs than in the Winter.

EXPLANATION.

It has more than once been before obſerved that the Body is capable of ſeveral different *Standards*, and yet continue in a ſtate of Health; the Difference therefore which is made between Winter and Summer, is ſuch as the Body gradually paſſes into, and receives no Injury thereby; for ſuch a Change on a ſudden would endanger its falling into ſome bad Diſtemper. And the Weight of the Body is leſs in Summer than in Winter, becauſe there is continually made *a larger* Perſpiration, that is, there is made a greater Waſt at that Time thorough the Pores of the Skin in Proportion to the Quantitities taken in by Eating and Drinking, than what is made the ſame way, in Winter, and in cold Weather. A *larger* Perſpiration, I ſay, not a *better*; becauſe it appears already, that the moſt beneficial and ſerviceable Perſpiration, is made when the Nerves are harden'd and firm, as they are in clear cold Seaſons, and the Body then enjoys the moſt perfect State of Health, as will likewiſe appear further from the ſubſequent *Aphoriſms*, and therefore,

APH.

APH. XXIV.

That Laſſitude or Wearineſs which is perceiva-in Summer-time, is not becauſe the Body is then heavier, but becauſe it is then rendered weaker.

EXPLANATION.

Which is alſo confirmed by the following, and the Reaſon of it very plainly demonſtrated.

APH. XXV.

The Body becomes weaker in hot Weather, becauſe with the Perſpirable Matter a great deal flyes off which cannot be ſpared, and becauſe the natural Heat, is not concentrated.

APH. XXVI.

In Hot Weather ſomething paſſes thorough the outer Skin, which carries along with it, ſome Part of the uſeful Juices.

EXPLANATION.

The Three latter *Aphoriſms* are very much the ſame in Subſtance with one another, and expreſs but the very ſame thing in Terms ſomething different.

APH. XXVII.

In Summer-Time, the Body is not uneaſie from the Heat of the Air immediately; for every Part of the Body is even then hotter than the external Air; but becauſe at ſuch times there is not a ſufficient Coldneſs to concentrate the *Natural Heat:* By which means it becomes ſo ſcattered, that it cannot drive out the Perſpirable Matter, (in its own Nature Hot,) by inſenſible Steams; which Matter by being retained, acquires a ſharpneſs, and is really the Cauſe of that Uneaſineſs we are under from a Senſe of the Summer Heat.

EXPLANATION.

The Terms herein, *natural* or *vital Heat*, and its *Concentration* by extream Cold, are ſuch as *Sanctorius* himſelf ſeems to have had but very obſcure Notions about, and therefore when ever he uſes them, is either very difficult to be underſtood, or elſe is apt to be led into ſome Miſtake. It hath been already ſhewd, under *Aphoriſm* LXVIII. of the *firſt Section*, which ſee, that the *Natural* or *Vital Heat* is always as the Bloods Motion, and the Bloods Motions as the contractile Force of the Solids; and therefore that at ſuch Times, that the contractile Force of the Solids is greateſt, the *Natural Heat* will be ſo too. And in this Senſe it may properly be called *Abſolute*; but as the Term is ſometimes uſed comparatively, and with Relation to other Bodies or the external Air, it may then be called with more Propriety, *Relative Heat*; now with regard to this Diſtinction, and the Cauſes before aſſigned of the *Abſolute Heat* of the Body, nothing is more certain, than that the *Abſolute Heat* is greater in Winter than in Summer-Time, becauſe in the coldeſt Weather, the contractile Force of the Solids is much ſtrongeſt, although indeed in the other Senſe, the Body is then coldeſt, that is, with Relation to the greater Senſe and Perception it has then of Cold from the external Air; and alſo of Conſequence the *Abſolute Heat*, contrary to the *Aphoriſm*, is leaſt in the Summer. Time, the Solids being then more relaxed, and not ſo able to circulate the Fluids with ſo much Force, although it may indeed be ſaid to be relatively hotter, that is, it does not feel ſo much Cold: And after this manner Cuſtom has eſtabliſhed the uſual way of Speaking, when a Perſon ſays he is colder or hotter, nothing elſe is to be underſtood, but that he has a greater or leſſer Senſe of Cold at that Time upon him, than before, and that only from the Alterations of the Air; but were he to expreſs himſelf ſtrictly as to the *Abſolute* Increaſe or Decreaſe of his *Natural Heat* as above explained, he muſt ſay quite the contrary, for the Reaſons before given. If it be urged, that in Summer-Time, the external Heat of the Air by expanding and rarefying the Animal Juices, aſſiſts their natural Heat, and thereby renders them hotter than in Winter; it will not at all help the Matter, becauſe ſuch *adventitious Heat*, is ſo far from being called *Natural* or *Vital Heat*, that it deſtroys it and weakens the Body, and renders it leſs able to withſtand external Injuries. Thus it is eaſie to obtain a clear Notion of theſe Terms, and ſee the Neceſſity of making this Diſtinction; and therefore I hope this ſeeming Deviation from the *Aphoriſm* above, will be excuſed.

That an Uneaſineſs in hot Seaſons, may ariſe from ſome Sharpneſs or Acrimony of the Perſpirable Matter, irritating and fretting the Fibres in its Paſſage, is very reaſonable to believe; for the Pulſation of the Solids by being weaken'd, may admit ſuch a Stop of the Perſpirable Matter, as may diſpoſe it to ſuch an Alteration, but that ſuch Obſtructions are occaſioned by the want of external Cold to concentrate the *Vital Heat*, is either ſaying nothing at all, or concealing a Plain Truth under a great deal of Obſcurity.

The Perſpirable Matter, may be ſaid to be *Hot* in its own Nature, as it is broke and divided into very ſmall Parts, and thereby when obſtructed and ſtagnant, the more diſpoſed to inteſtine and fermentative Motions; and ſo indeed may any Parcel of Matter be ſaid to be *Hot*, that is capable of being put into ſuch Motions; but then it is to be taken notice, that ſuch Heat is the reſult only of that Motion; and that therefore the Perſpirable Matter in it ſelf, without fermenting, is no hotter, than any other Parts of the Body.

A P H. XXVIII.

When Bodies in hot Weather, in Sleep, either by Day or Night, Perſpire or Sweat much, they become lighter, and are not ſenſible of any Uneaſineſs from Heat.

EXPLANATION.

Becauſe ſuch a Diſcharge removes and carries off all that digeſted Matter, which if retained, would for the Reaſons given in the preceding *Explanation*, occaſion that Uneaſineſs.

A P H. XXIX.

A ſudden Cold upon Hot Weather, will occaſion an Obſtruction of the Perſpirable Matter, about a Pound in one Day.

EXPLANATION.

The Quantity obſtructed will always be greater or leſſer, according to the different Diminutions of the Excretory Paſſages, by ſuch Changes. See *Aphoriſm* XVII, XVIII, of this *Section*.

A P H. XXX.

If it be a mild Summer, the Body is reduced to a *Standard* ſuitable to the Seaſon, by Sweating.

EXPLANATION.

Sweating, is Inſenſible Tranſpiration made Senſible, either by a great Increaſe of the Diſcharge of Perſpirable Matter, or by the going off along with it that which is groſs and undigeſted, and not broke ſmall enough to exhale by inſenſible Steams. If therefore Sweat be not immoderate, that is, if it does not carry off with it too much of the uſeful and nutritious Juices, it cannot but be the moſt eaſie and ſafe way, eſpecially in warm Seaſons, to clear the Body of any Superfluities or ill Humours, occaſioned by the Obſtruction of the Perſpirable Matter.

APH. XXXI.

If in the Beginning of the Summer Seaſon it Sets in violent Hot, there will ariſe a great Laſſitude; which if the Heat continues to increaſe gradually, will wear off, becauſe thereby the Quantity of obſtructed Perſpirable Matter will be much diminiſhed.

EXPLANATION.

The Laſſitude or Wearineſs upon ſuch ſudden Heat, ariſes from the weakening the Elaſticity and Contraction of the Solids by it, as was ſaid before; whereupon the Body loſes of its Strength, and therefore even without any increaſe of Bulk from Obſtructions, will labour under a Senſe of a greater Weight, that is, will be under a Wearineſs or Laſſitude. But if ſuch Heat continues gradually to increaſe, the cuticular Diſcharges will alſo by Degrees be augmented, by an inlargement of the Pores, until ſuch a Waſt is made as will bring the Bulk of the Body the ſame in Proportion to its preſent Strength, as it was before when both Bulk and Strength were greater, or, which is the ſame, it will be lightned until that Wearineſs be removed; whereas, was the Heat quickly to abate or diſcontinue its Increaſe, that ſudden Relaxation and Weakneſs of the Solids, would ſo far fall ſhort of being able ſufficiently to digeſt and break the Perſpirable Matter, that it would unavoidably be followed by Obſtructions, and perhaps Fevers.

A P H. XXXII.

The ſame Strength, hath leſſer Trouble with a leſſer Weight, than with a greater.

EXPLANATION.

By the ſame Strength is to be underſtood, the ſame contractile Force of the Fibres; and by Weight, the Quantity of the Fluids; and then it will need no *Explanation*, further than what may be met with in *Sect.* I. *Aph.* XXVIII. and XXIX.

A P H. XXXIII.

Perſpiration promoted by warm Air or Water, is hurtful, unleſs it be to get rid of ſome greater Evil.

EXPLANATION.

The ſame likewiſe is true of the increaſe of any of the Senſible Evacuations beyond what is natural, both becauſe it puts a greater ſtreſs upon the Excretory Organs, and gradually weakens their Springs, and becauſe ſuch increaſed Evacuations always defraud the Body of ſome Parts, as cannot without Injury be parted with; but the greateſt Damage is ſuſtained by an increaſed Perſpiration; becauſe in this Diſcharge the whole Body is more generally concerned, and therefore all the Solids ſooner injured by it, and a greater Waſt made of the nutritious Juices.

A P H.

APH. XXXIV.

In the Summer Seaſons, ſtrong Perſons perſpire moſt in the Day-Time, but in Winter moſt in the Night.

EXPLANATION.]

Where the Strength and Vigour of the Solids is preſerved the ſame, the Fluids will continue to be circulated with their uſual Velocities and Impulſes; and as Perſpiration is a Diſcharge of the moſt digeſted and fineſt Parts of the Juices thorough very fine and imperceptible Pores, it follows, that whatſoever moſt favours any Paſſage thoſe Ways, without leſſening the Strength of the Solids, muſt undoubtedly moſt promote Perſpiration. And as it is certain that any Warmth, ſo it be not too great, and as was before ſaid, to impair the Strength of the Body, enlarges the cutaneous Pores, and ſuch Warmth in Summer being greater in Day-Time, by the near Approach of the Sun, and during Winter, in the Night, by the accuſtomed Coverings of Bed-Cloaths; it follows of Conſequence, that in healthful robuſt Conſtitutions, where the Strength is not at all ſunk by ſuch external Warmth, there will be made at thoſe Times, the largeſt Diſcharges by inſenſible Tranſpiration.

APH. XXXV.

An obſtructed Perſpiration in Summer, diſpoſes to malignant Fevers; whereas in Winter it makes but ſmall Alteration: For Bodies are more ſubject to an Acrimony or Sharpneſs of the Perſpirable Matter in Summer, than in Winter Seaſons.

EXPLANATION.

When the Fibres are weak as in Summer and Sultry Weather, and the Perſpirable Matter by any Cauſe whatſoever happens to be obſtructed, the Solids then muſt needs be the much leſs able to circulate it and break it ſmall enough for Tranſpiration, and the Heat alſo of the external Air, will favour its ſooner falling into fermentative and inteſtine Motions, and diſpoſe it thereby to Corruption, from whence will ariſe ſuch as are commonly called Malignant and Putrid Fevers. But in cold Weather, both the Conſtitution is better able by degrees to overcome and wear away ſuch an additional Load, and the obſtructed Matter will beſides be not ſo apt to Putrefaction, but ſometimes continue a conſiderable while without any great Injury.

A P H. XXXVI.

Sleeping in Summer Time with the Body uncovered, or in the open Air, by hindering Perſpiration, very much diſpoſes the Humors to Putrefaction.

EXPLANATION.

It already appears from what has been ſaid under *Aph.* XX. *Section* I. How eaſily the Buſineſs of Tranſpiration is diſturbed during the time of Sleep, and that it is more apt to be ſo then, than at other Times. And how the obſtructed Perſpirable Matter is moſt diſpoſed to Putrefaction in hot Weather is plain, from the immediately preceding *Aphoriſm,* with its *Explanation.*

A P H. XXXVII.

An Obſtruction of Perſpiration does not warm the Bowels, unleſs the obſtructed Matter contracts an Acrimony by its Stagnation, or by external Heat, or violent Motion.

EXPLANATION.

Although external Cold often obſtructs Perſpiration, yet by this it is manifeſt, that the Body is not rendered ever the warmer by the Retenſion of that Matter, until by external Heat, or violent Motion or Fermentation, it acquires that Quality; which exactly agrees with what was advanc'd under *Aphoriſm* XXVII. above.

APH. XXXVIII.

There is ſeldom much Injury perceived from a liberal Uſe of *Venery*, when a ſudden Cold hrppens to ſucceed a hot Seaſon; but when the Air again grows hot, the Body will be ſenſible of much Hurt.

APH. XXXIX.

The ſudden change into a cold Air after *Venery*, makes amends for the loſs ſuſtained thereby by its Concentration of the Vital Heat.

EXPLANATION.

It is not at all to be diſputed, but that exceſſive *Venery*, much weakens the Strength and Elaſticity of the Solids, by the violent and intenſe Contractions they are under at ſuch times, inſomuch that a conſiderable Space of time is required to recruit them with a freſh Stock of Spirits and Vigour; but before ſuch Recruit is made, if the Weather ſuddenly changes from hot to cold, the Fibres thereupon will immediately be ſo much drawn up and harden'd, that all the Limbs will be new braced, and the Damage received hardly at all perceivable. But if ſuch a Conſtitution of the Air does not continue, until the Solids are ſupply'd and invigorated with a convenient freſh Stock of Spirits, from proper Food; and the Weather happens again to ſet in hot, the Fibres will again ſlacken in ſuch a manner, as to occaſion the Loſs before received to be conſiderably felt: But by the Advantages ariſing from the Colds *Concentrating* the Spirits, is to be underſtood as before explained, only as the Solids are ſtrengthen'd by it.

APH. XL.

In Summer Nights a Body is moſt liable to Fevers, becauſe of the various Alterations of the Air; for in the beginning it is Sultry; in the middle more temperate; and towards the Morning cool: By which the wonted Perſpiration is check'd in time of Sleep by throwing off the Cloaths, and the Body is thereby made heavier; which does not happen in Winter-Time.

APH. XLI.

From the Autumnal *Æquinox* to the Winter *Solſtice*, the Quantity every Day perſpired, ſcarce exceeds a Pound; from which time even to the Vernal *Æquinox*, the Body begins to Perſpire more freely.

EXPLANATION.

A Perſon therefore in this Part of the Year, is without doubt much more in Danger of being Diſtemper'd, than in any other, becauſe the Air continually growing colder and moiſter, every Day leſſens the Quantity perſpired, and increaſes the Weight of the Body; and therefore if the Solids at the ſame time by the increaſe of Cold do not acquire a proportionate increaſe of Firmneſs and Strength, there cannot but be loſt that *Equilibrium* between them and the Fluids, without which it is abſolutely impoſſible to maintain a State of Health. And if the Diminution of Perſpiration be ſo large as here mention'd; it is a wonder that ſo many paſs this Quarter with ſo few Complaints as they do. From hence may be collected a great many uſeful Deductions, with Relation to the Cauſes and Cures of ſeveral Autumnal Diſtempers. But above all, nothing is more certain, than that a particular Regard ought to be had to the cuticular Diſcharge, and that without it, 'tis not poſſible to arrive even at any tolerable management of a Diſeaſe.

APH. XLII.

The Autumn is unhealthful, both becauſe Perſpiration leſſens upon the ſupervening Cold, and becauſe that which is obſtructed acquires an Acrimony, and a corroſive Quality.

EXPLANATION.

The former Part appears from what has been ſaid immediately before in the preceding *Aphoriſm.* How the latter is brought about may be ſeen under *Aphor.* XXXV, and XXXVI of this *Section.*

APH. XLIII.

They eſcape the Autumnal Diſtempers, who can preſerve their Bodies of the ſame Weight, as in Summer-Time.

EXPLANATION.

Exerciſe therefore and Abſtinence, are at this time very ſerviceable and neceſſary, by taking off, or preventing a continually increaſing Load, and keeping the Body to a healthful *Standard,* and at this time likewiſe, if ever, muſt Purgative Medicines be of Service, (as we uſually ſay) by way of Prevention. But in the uſe of ſuch, great Care muſt be taken that they be mild, and not ſuch as by large Diſcharges by Stool, will indanger the Diverſion of what ought to paſs thorough the Skin, the ill Conſequences of which ſufficiently appear already.

APH.

APH. XLIV.

That Weight which has gradually increaſed, ought alſo by Degrees to be carried off.

EXPLANATION.

Every one cannot but be appriſed of the Reaſonableneſs of this Caution, becauſe large Evacuations at once are known always to be attended with ill Conſequences, and ſometimes ſuch as are very Dangerous; not without the greateſt Neceſſity therefore ought they to be ventured upon. Concerning this at large, conſult *Bellini de Miſſione Sanguinis.* See likewiſe, *Sect.* I. *Aphoriſm* CXIV.

APH. XLV.

The ſuperfluous Weight of the Body, is rather to be taken away in Autumn, than in the Spring; becauſe it is moſt hurtful upon a ſupervening Cold.

EXPLANATION.

When there happens to ariſe too great a Fulneſs in the Spring from an obſtructed Perſpiration, the increaſing Warmth of the Seaſon will by rendring the Pores ſtill larger, be very likely to carry off that Load without any other means, if the ſtrength of the Solids does not decay too much at the ſame time, (See *Aphor.* XXXI. *Sect.* II.) But in Autumn ſuch Fulneſs will rather continue its Increaſe, by the increaſing Cold, rendering the Pores ſtill more ſtraight; and therefore at that time there muſt needs be much greater Occaſion for Medicinal Evacuations, in which number *Phlebotomy* may be reckon'd not the leaſt conſiderable, if it be ordered according to the Directions of an underſtanding Perſon, who is well acquainted with the extraordinary Changes that may be brought about by that means in the *Animal Oeconomy.*

APH. XLVI.

There is no Danger of the Autumnal Diſtempers, if the Body be well guarded againſt the increaſing Cold by warm Garments; and by the Uſe of *Dieureticks*, it is preſerved of the ſame Weight as before.

EXPLANATION.

See *Explanation* to *Aphoriſm* XLIII. *Sect.* II. And warm Garments likewiſe cannot but very much aſſiſt Perſpiration, becauſe they guard the cutaneous Pores from being immediately affected by the external Cold, and ſtraighten'd by it; they preſerve alſo a due Warmth thereby throughout the whole Body. But care muſt be taken not to overdoe it this way neither, for too great a Burthen of Cloaths may be injurious, both as it waſts the Strength (See *Aphoriſm* LV, *Sect.* I.) and brings a Perſon to ſuch a tender Habit, as cannot without a great deal of Difficulty be got rid off. To the ſame Purpoſe is the following.

APH. XLVII.

To be well covered with Cloaths aſſiſts Perſpiration, and lightens the Body.

APH. XLVIII.

They who are accuſtomed to Diſtempers in Winter that ariſe from a Fulneſs of Humours, ought to Purge in Autumn, and not in the Spring, and then to be brought to that *Standard*, which they enjoyed in the Summer.

APH. XLIX.

But for ſuch Diſeaſes as ariſe from noxious Qualities, Purging ought rather to be uſed in the Spring than Autumn; becauſe in the hot Weather, ſuch Qualities grow worſe, more than in the Winter.

EXPLANATION.

Theſe Two *Aphoriſms* furniſh us with very good Rules, to know in what Caſes Spring Courſes of Medicine will be moſt ſerviceable, and to whom they will be beſt in Autumn. From what has been ſaid before it is manifeſt, that in the latter Seaſon it is much more neceſſary and uſeful to evacuate where there is nothing but a ſuperfluous Weight to be removed, than in Spring: But where the Juices are diſtemper'd much in Quality, and the Secretions thereby not duly made, and to remedy which there is required a Courſe of *Alteratives*; the approaching Cold at that time might render ſuch means altogether ineffectual, and perhaps ſometimes very injurious: Whereas in the Spring the increaſing Warmth gradually rarefying and opening the Animal Juices, will very much favour and aſſiſt the Operations of a Medicine, and make it much more eaſie to obtain an effectual Cure. Where therefore a Caſe chiefly requires Evacuations and *Purgative* Medicines, it ought much rather to be undertaken in Autumn; but if the Buſineſs muſt be done principally by *Alteratives*, by all means it ought to be ſet about in the beginning of the Year, which Seaſon as it better aſſiſts by its warmth the Operations of ſuch Medicines, ſo likewiſe by the very ſame Warmth, if means towards a Cure are neglected, may a Diſtemper which has a long time been in *Embryo*, be drawn out into very troubleſome and ungovernable Symptoms. From all which, and the preceding, appears alſo the Reaſon of the next,

APH. L.

They who in Spring-Time throw off their *Winter* Garments too haſtily, and are too backward, in putting them on again in the Fall, in the Summer-Time are ſubject to Fevers, and in the Winter to Defluxions.

EXPLANATION.

For Obſtructions of the Perſpirable Matter in the Spring, which a too haſty leaving off Cloaths may occaſion, if they continue, they will endanger Stagnations, Putrefactions, and Fevers; as has been before explain'd: But by taking Cold in the Fall, the Solids at that time rather increaſing than looſing their Springs, will be able to grind and throw off the retained Matter, by an increaſe of ſome of the Senſible Evacuations; which Matter by its Specifick Lightneſs, will moſt probably be diſcharged by the Glands about the Head and Breaſt. Therefore,

APH. LI.

If the obſtructed Perſpirable Matter, acquires an Acrimony, it produces Fevers, and Inflammations; but when it offends only in Quantity, it cauſes, Apoſtumations, Diſtillations, and Cachexies.

EXPLANATION.

The Contents of this and the three preceding *Aphoriſms* well underſtood, take in a large Compaſs of the moſt uſeful Parts of Practice, and therefore ought to be well conſider'd. Any larger Notes upon them would take up too much Room here.

APH. LII.

External Cold, by concentrating the *Vital Heat*, renders Nature ſo much the ſtronger, by how much the eaſier ſhe can diſpenſe with the Additional Weight of two Pounds.

EXPLANATION.

What is to be underſtood of the *Vital Heat*, and its *Concentration*, has been explained at large already, *Explanation* to *Aphoriſm* LXVIII. *Section* I. All therefore that can be learn'd from this is, that the ſtronger the Body is naturally, the greater Addition of Vigour will it receive from external Cold, ſo that the Air be clear and dry; thereby it is alſo enabled the better to bear with any Additional Weight, which may happen by accidental Obſtructions of the Perſpirable Matter.

APH. LIII.

Bodies in the beginning of Winter with Eaſe, but in the beginning of Summer with Difficulty, are brought to the Summer *Standard* of Health.

EXPLANATION.

Becauſe by the growing Strength of the Solids, upon the increaſe of the Cold from the approaching Winter, Perſpiration may more eaſily be promoted and the Body lighten'd; whereas upon the approaching Heat of a Summer Seaſon, they ſlacken and grow weaker, and thereby render it much more difficult, to throw off any ſuperfluous Load, and bring the Body to a good *Standard.* See *Aphor.* XXXV. *Sect.* II.

APH. LIV.

Health may be preſerved intire to an extream Age, where the Body can be kept to the ſame *Standard*, thorough the Four Seaſons of the Year.

EXPLANATION.

Becauſe where the Body is ſo kept, the Waſt and Supply will be ſo exactly proportionate to one another, that the Solids will be never burthen'd by any unneceſſary Weight, nor the Secretory Organs over-ſtrain'd ſo as to injure their Textures and Functions ; and likewiſe by their being conſtantly and duly furniſhed with a proper Stock of Spirits, will they very ſlowly wear out and decay. But on the contrary,

APH. LV.

When the Weight of the Body changes often in the Courſe of one Year, 'tis dangerous. And likewiſe,

APH. LVI.

By how much the greater the Change of Weight is, whether it be an Increaſe or Diminution of the Blood only, in ſo much the worſe Condition is that Body in.

EXPLA-

EXPLANATION.

This is abundantly confirmed by what is daily obſerved in thoſe who often Bleed, for they ſeldom enjoy long together a perfect Health, but are more ſubject to be affected and diſorder'd by the ſeveral Changes of Weather or ways of living, than other People who have not been accuſtomed to ſuch an ill Practice: And the Diſtempers they are moſt incident to, are ſuch as ariſe from too great a Quantity of Blood, as Fevers and Inflammations.

APH. LVII.

The increaſe of Weight is in the beginning of Autumn, and its Diminution in the beginning of Summer.

EXPLANATION.

The Reaſons are plain from ſeveral of the preceding *Aphoriſms*, for the growing Cold in Autumn gradually draws up the Pores and leſſens the cuticular Diſcharges, whereby the Bulk of the Body is increaſed until it arrives to its greateſt *Healthful Standard*; but in the Spring the approaching Heat ſlackening the Fibres, enlarges the cutaneous Pores, promotes Evacuation that way, and renders the Body lighter.

APH. LVIII.

Thoſe Bodies, who increaſe in Bulk, are in more Danger than they which grow leſs.

EXPLANATION.

This is true with Relation only to the Quantities of the Fluids, which while the Solids are good may ſoon be recruited upon too great a Waſt; but when they abound for any conſiderable time, a great many bad Qualities will be contracted, as moſt commonly too great a Viſcidity, which cannot ſometimes, without conſiderable Difficulty be removed. See *Aphor.* XVIII, XIX. *Sect.* I.

APHORISMS *added by the* AUTHOR.

APH. LIX.

Thoſe Parts of the Body which are covered, Perſpire the leaſt, but if they happen to be laid bare in Sleep, although it be in a very warm Air, the Pores will be ſtreightned thereby.

EXPLANATION.

It has already been explained how warm Coverings aſſiſt Perſpiration, and likewiſe how eaſily that Buſineſs is diſturbed in time of Sleep.

APH. LX.

An Air too cold, moiſt, or windy, hinders Perſpiration: For which Reaſon thoſe who are moſt at Home, as Women, are hardly ever troubled with Coughs, or Catarrhs, or Inflamations of the Lungs.

EXPLANATION.

For theſe Diſtempers chiefly ariſe from Obſtructions of the Perſpirable Matter, and its being thrown upon other Parts. How thoſe Cauſes hinder Perſpiration, hath been often explained above.

APH. LXI.

A City Air is worſe than that in the Country, becauſe it is thicker, and prejudicial to the Appetite.

EXPLANATION.

Daily Experience teſtifies to the Truth of this *Aphoriſm.* But from how many Cauſes the Air in a large City may be render'd more unfit for Reſpiration, and the Offices of Life, than that in an open Country, would be of too great a Length to enter into here.

Medi-

Medicina Statica.

SECT. III.

Of MEATS *and* DRINK.

APHORISM I.

IF upon a full Stomach, the firſt Concoction is perfected during Sleep, for the moſt part about Forty Ounces will Perſpire that Night: But if that Concoction is not made, hardly above Eighteen Ounces;

APH. II.

Upon an empty Stomach, even in the time of Sleep, there does not Perſpire above Eighteen Ounces.

EXPLANATION.

THE former makes it appear how neceſſary and ſerviceable Sleep is to a due Perſpiration, (See *Aphor.* XX. *Sect.* I.) and the latter convinces us, by the Waſt that is made, (although Faſting, notwithſtanding it being ſo much leſs than upon a full Stomach) of the daily need we ſtand in of a large Supply from convenient Food.

Dr. *Liſter* here takes occaſion to obſerve, That Inſects and ſuch Creatures which require but very ſmall Nouriſhment, have but a very ſlow Circulation of Blood and Juices:

The Reaſon of which is very plain, for the greateſt Motions always occaſion the greateſt Attritions, and the faſter the Parts are broke and wore off, the more ſpeedy and large muſt be the Supply: But in Inſects the Motions of their Fluids are ſo very ſlow, that they wear but little, and conſequently, they need but very little Nouriſhment. This likewiſe gives a very good Caution againſt ſtraining the Conſtitution and wareing it out faſter than need by immoderate Quantities of Spirituous Liquors, or violent Exerciſes, for both theſe, by accelerating the Motions of the Fluids occaſion greater Waſts of the Solids, than the beſt Food will conſtantly repair.

A P H. III.

A full Stomach *without Digeſtion* Perſpires as much as one that is faſting, or thereabout.

EXPLANATION.

This exactly agrees with the two former, and is almoſt the very ſame in other Words.

A P H. IV.

Very nouriſhing Meats, excepting *Mutton* between the time of Supper and Dinner, do not Perſpire above Eighteen Ounces.

EXPLANATION.

The more nouriſhing Meats are, the leſs of them taken at a time will ſerve, and their eaſie Aſſimulation with the Animal Juices, and ready Entrance into the Subſtance of the Solids, neceſſarily leſſens the Quantity to be perſpired.

APH. V.

A large Meal of ſmall Nouriſhment in one Night, with a great many will Perſpire Forty Ounces or more.

EXPLANATION.

By Meats of ſmall Nouriſhment are not to be underſtood ſuch as the meaner Sort of People take up with, or ſuch as are diſagreeable or ungrateful to the Stomach, for a great many of this Kind are quite the contrary, eſpecially moſt Sorts of Fruit; but all ſuch as are of a light diſſolvable Texture, which are ſoon broke in the Stomach, and carried through the whole Circuit of the Fluids, in a leſſer time than harder and more conſiſtent Meats, and by that are rendered ſo very ſmall as to fly off by inſenſible Perſpiration. Several which follow are much to the ſame Purpoſe;

APH. VI.

Such Food keeps the Body heavieſt, as is fulleſt of Nouriſhment and Crudities.

APH. VII.

Thoſe Meats which the Body has been moſt accuſtomed to, and ſuch as are in their own Natures moſt exhalable, will keep it lighteſt.

APH. VIII.

Mutton eaſily digeſts and perſpires: For it will waſt in a Night the third Part of a Pound, more than other uſual Food.

EXPLANATION.

Mutton therefore cannot but be a much more agreeable Diet in *Rheumatiſms,* and all Caſes where the Blood is weak and Siezy, than ſeveral Kinds of freſh Fiſh, which are often preſcribed, upon a falſe Notion of their not being ſo feavouriſh as Meats: For although a Perſon may ſeem ſomething hotter after a Fleſh Meal, than after Fiſh, yet that Heat, eſpecially if it be after *Mutton,* and Meats of an eaſie Digeſtion, is nothing elſe than an increaſed agitation of the Fluids, proceeding from brisker and ſtronger Pulſations of the Solids upon ſuch freſh Recruit of Spirits; and its Conſequences will only be, the breaking the *Lentor* or Viſcidity of the Juices, and promoting Perſpiration, whereas Fiſh and glutinous Meats, although indeed they raiſe no feavouriſh Heats, yet at the ſame time and for the ſame Reaſon they alſo afford but a very ſlender ſupply of Spirits to the Solids, whereby their Contractions are ſtill kept weak, and the Viſcidity of the Fluids rather increaſed than otherwiſe, and upon the ſame Account in the like Caſes are the following to be choſe.

APH. IX.

Thoſe Eatables which are made of fermented Paſt, do not render the Body heavy, for they Perſpire much more eaſily than Roots.

APH. X.

A Healthful Perſon perſpires inſenſibly in the Space of one Day, as much as by Stool in two Weeks, although every Day in that time he has a conſiſtent well-digeſted Stool.

EXPLANATION.

This agrees with the LIXth *Aphoriſm* of the firſt *Section*, where the Diſcharges by *Stool* are computed to amount in the Space of one Day to *four Ounces*, by *Urine* to *ſixteen Ounces*, and by inſenſible *Tranſpiration* to *forty Ounces*, and upwards; and this well conſider'd, cannot but ſuggeſt the moſt natural and effectual means to clear the Body of any Diſorders, ariſing from an Obſtruction of any of the Evacuations, but eſpecially that of inſenſible Tranſpiration; and likewiſe furniſh us with a Theory whereby with certainty to accountfor all the Symptoms of ſuch Diſorders. Dr. *Pitcairne* as he applyes this in his *Diſſertatio, de Curatione Febrium quæ per Evacuationes inſtituitur,* Reaſons with ſo much ſtrength and clearneſs thereupon, (allowing his Poſtulate, that the Morbid Matter may be equally drawn off by any Evacuation,) that I cannot perſwade my ſelf here to omit giving a ſhort Abſtract thereof; whereby the Reader may not only be inſtructed in a better Notion of this Matter, but alſo convinced that *Phyſick*, when in the Hands of ſuch who know the true ways of applying themſelves thereto, is not meer *Gueſs-work*; as a great many who would be thought too no mean Proficients therein, out of their abundant Humility are diſpoſed to own; but with Deſign only to depreciate what they find themſelves not turned to underſtand.

That an Obſtruction of Perſpiration or any other Evacuation, ſo as to increaſe the Quantity of Blood thereby, will in Proportion to ſuch an increaſe raiſe a Fever, has been accounted for and demonſtrated under ſeveral of the foregoing *Aphoriſms*: Now whereas Perſpiration is double, if not triple of all the other Evacuations taken together, an Obſtruction of half or a third Part of the Perſpirable Matter, will raiſe a Fever as great, as a ſuppreſſion of all the other Evacuations together. And alſo whereas cuticular Diſcharge, is ten times greater than that by Stool, the Diminution of a tenth Part of it will raiſe a Fever as great as a total Retenſion of the Contents of the Guts. And for the ſame Reaſons the increaſe of Perſpiration by one half or a third Part, will goe as far towards the removal of a Fever, as an increaſe of all the other together;

and the promotion of a tenth Part only, will goe as far, as the whole Diſcharge by Stool; but an increaſe of its entire Quantity, will do as much, as ten times the uſual Quantity by Stool. Further, whereas it appears, that the Matter of one Secretion, may be drawn away by the increaſe of another, and that any one Secretion may be enlarged in any given Proportion; and alſo that all the Secretions may be ſo enlarged, as to keep the ſame Proportion to one another, as in a natural State, therefore a greater Quantity of an Overcharge may be drawn off in any given time by Perſpiration, than by any other Diſcharge, in Proportion to the Quantity which cuticular Secretion bears in a natural State, to that of any other Diſcharge alſo in the like State.

From hence it follows that a Fever, or any other Diſtemper, cannot ſo expeditiouſly be removed by an increaſe of Diſcharges by Stool, as by the increaſe of cuticular Tranſpiration; unleſs the increaſe of the former ſhould be in an *inverted Proportion* to that of the latter, as they are to one another in a natural State, wherefore the Diſcharge by Stool ought to be a hundred times more than natural, to throw off as much in the Space of one Day, as the increaſe of Perſpiration, only ten times beyond what is natural, would do in the ſame Space of time: That is to ſay, where a Perſon in a healthful State uſed to have one Stool, he muſt then have a hundred: And therefore he who has been accuſtomed to ten Stools a Day, if when Sick he is fond to be cured by that Diſcharge, it is neceſſary that he muſt have a Thouſand in the ſame time.

From all this it appears that in a Fever, or indeed in any other Diſtemper, whoſe Cure is to be effected by Evacuation, that there is ten times a greater Probability of removing it by Sweat, than by Stool, and as a Phyſician always ought to fall in with that Method which carries with it the greateſt hopes of Succeſs, he will very rarely find a juſt Occaſion to deviate from that of curing Fevers by the cuticular Diſcharges.

APH. XI.

A full or an empty Stomach, leſſens Perſpiration, for a full one diverts it by a Corruption of the Aliment; and an empty one draws it back that it may be filled.

EXPLANATION.

This is very obſcurely expreſs'd, for by the full Stomach cannot be underſtood any other than one overcharged with a Meal, which it is not able to digeſt, but nauſeates, if it does not throw it up again by Vomiting, and this muſt undoubtedly hinder Perſpiration; for if its Contents paſs into the Bowels, they will be ſo crude or groſs, as very little to paſs thorough the *Lacteals*, and therefore will moſtly be thrown off by Stool, which conſequently cuts off a Supply of the Perſpirable Matter. This is likewiſe the Reaſon why an empty Stomach has the ſame Effect, in leſſening Perſpiration, The laſt Part, about the Attraction of an empty Stomach, in order to be filled, I do not underſtand.

APH. XII.

When a full Meal is not perfectly digeſted, it is to be known by an increaſe of Weight; for the Body will not then perſpire well: But an empty Stomach is filled with Vapours.

EXPLANATION.

Nothing is more plain and certain, than the former Part. The *Flatus* or Vapour which he ſays an empty Stomach is filled with, can be nothing elſe than the Matter of internal Perſpiration there collected; for from *Aphoriſm* V. *Sect.* I. it appears, that all the internal Parts whatſoever do perſpire thorough their reſpective Membranes or Coverings; therefore for the moſt Part, that which ariſes from the *Viſcera* of the lower Belly gets either into the Stomach and Guts, and when collected in any conſiderable Quantity provokes them to diſcharge it either upwards or downwards.

In ſeveral diſeaſed Perſons, eſpecially thoſe we call Hypocondriacks, this Matter acquires ſo much Acrimony or Sharpneſs, as to irritate and offend the Membranes very much, cauſe ſharp Pains, and ſometimes violent Cholicks; and this is the Reaſon why Riding and any briſk Exerciſes are always found of ſuch mighty Service to theſe People, becauſe it diverts the Perſpirable Matter in greater Quantities by the outer Skin, which is not ſo tender and perceptible of thoſe irritating and ſometimes corroſive Steams. And it is very obſervable that ſuch Perſons, at thoſe times they are freeſt from inward Complaints, are very ſubject to Raſhes and cutaneous Eruptions; which is nothing elſe than the groſs Acid Perſpirable Matter, (that at other times uſed to get thorough the *Viſcera* into the Cavities of the Belly and occaſion the forementioned Diſorders) drawn off by the outer Skin, and raiſing up the *Cuticula* in ſeveral Parts, as it paſſes; and ſometimes abrading, and taring off the Extremities of the Ducts in ſuch a manner, as occaſions a continual pouring out of a viſible *Serum*. And at this time, I know a Woman of a thin tender Conſtitution who is ſeldom free from Cholick Pains, eſpecially upon taking a little Cold; but whenſoever ſhe eſcapes them two or three Weeks together, there never fails to break out upon her a troubleſome Itching Humour, which if it continues out long, appears in ſeveral Places like *Tetters*, and ouzes out a Salt limpid *Serum*, all the time it keeps out ſhe is eaſie, and whenever it diſappears the old Pains are ſure to return. Thoſe wandering Pains likewiſe which ſome complain of ſo much about their Limbs, I cannot but think are owing very much to the ſame Cauſes. The Actions of the Muſcles undoubtedly wear off and perſpire a great deal through their reſpective Coats, which if it be digeſted and broke very ſmall, by degrees gets thorough the Subſtance of the Parts and flyes off *qua data porta*, but otherwiſe it may be confined and lodged in the Interſticies of the Muſcles, and by its Groſsneſs or Acrimony, occaſion thoſe ſharp and ſevere Pains that are felt in Rheumatiſms, and if it be not by ſome means or other diſcharged, in a ſhort time either by an increaſe of its Quantity, or by the Derivation of a greater ſtore of Juices to the irritated Part, (according to the *Bellinian Theory*) it raiſes conſiderable Swellings, and at laſt renders the affected Muſcles uncapable of Motion. I cannot but be perſwaded, that from hence likewiſe may be deduced a very good *Rationale* of all the Symptoms and Changes, commonly attending what we uſually call the *Vapours* and *Spleen*, but it will take up too much Room here. And this confirms the following

APH. XIII.

A *Flatus* is nothing elſe but a groſs Perſpirable Matter.

APH. XIV.

Robuſt Perſons diſcharge their Food for the moſt part by Perſpiration: Thoſe not ſo ſtrong by Urine, and the weak chiefly by an indigeſted Chyle.

EXPLANATION.

The firſt Part is plain from what has gone before, but ſome who are not ſtrong enough to circulate it, and break it fine enough to paſs it off that way, may yet digeſt it far enough to ſeparate it in the Kidnies, and carry it away by Urine, even which thoſe who are weak cannot do, the greateſt Part going off by Stool, without ever getting into the *Lacteals*, and this is the Reaſon why the weakeſt Perſons are the moſt Laxative, and diſcharge much more by Stool in Proportion to the other Evacuations than thoſe who are ſtrong.

APH. XV.

If a Perſon eats no Supper and continues with an empty Stomach, it will hinder Perſpiration, and the obſtructed Matter will acquire a ſharpneſs; whence the Body will be ſubject to diſtemper'd Heats.

EXPLANATION.

Perſpiration will be hinder'd both for want of a Supply of Matter, and thorough the weakneſs of the Solids for want of Spirits; both which cannot but be the Conſequences of long faſting: The Fluids alſo hereby will loſe their due Texture and Conſiſtence, and become thin and ſharp; by which the Fibres will be too much irritated, and alſo by giving leſſer Reſiſtance to the compreſſive Force of the Veſſels, the Arteries will be contracted oftner, the Motion of the Blood increaſed, and the Pulſe quickned, and ſuch kinds of Fevers produced, which are called *Hectick*. And therefore of Conſequence,

APH. XVI.

Such Faſting as reduces the Weight of the Body below its natural Standard, is bad.

APH. XVII.

Why do any dye of Hunger, who have no want of Blood whilſt living? Becauſe the Blood crouding towards the Stomach, leaves the Heart empty.

EXPLANATION.

This is another Miſtake owing to the ignorance of the Bloods Circulation; which has been ſince the time of *Sanctorius* diſcovered, otherwiſe he would without doubt have given another Gueſs Account of it. It can be no wonder why Perſons may dye with Hunger, although well ſtock'd with Blood, to thoſe who are at all acquainted with the Waſt that is continually made by the Actions and Attritions of the ſeveral Parts of the Body, and that the Circulation of the Blood it ſelf depends upon the contractile Force of the Heart and its Appendices the Arteries, and that ſuch Contractions are owing to theElaſticity or Springyneſs of their conſtituent Fibres,which Elaſticity is alſo preſerved and maintain'd by the continual Supply of a convenient Juice, ſeparated by, and communicated to them from the Brain, and therefore when ſuch a Supply happens to be cut off, as it muſt needs be by the want of Food, the contractile Force of the Arteries neceſſarily abates, and conſequently the Blood ſtagnates in them which is Death. Perſons therefore by long Faſting do not dye, becauſe the Blood has recourſe to any particular Part, and ſo leaves the Heart empty; (as if the Blood was informed with an intelligent and wiſe forecaſt, and did not move as all inanimate Bodies do, by the Impulſes only and Directions of external Cauſes) For immediately upon Death the Heart is as full of Blood as at any other time, altho' thick and ſtagnant.

APH. XVIII.

It is not only the Quantity of undigeſted Food that renders the Body heavier, but alſo ſometimes its Quality, when it is ſuch as hinders Perſpiration.

EXPLANATION.

That is, when it is ſuch, as after it gets into the Blood cannot be broke enough to paſs out at the cutaneous Pores, but by its Groſsneſs or Viſcidity obſtructs the cappillary Veſſels, whereby afterwards it hinders the Paſſage of ſuch as is well digeſted.

APH. XIX.

When a Perſon ſeems to himſelf lighter than he really is, it is a very good Sign: Becauſe it ariſes from a perfect Digeſtion of all the Juices. See *Aphoriſm* XXVIII. *Section* I. with its *Explanation.*

APH. XX.

When all the Day, when the Body remains lightſome and active, it is preceded by a perfect Digeſtion of the *Chyle* and Blood, and a clear Diſcharge of the Recrements of the third Concoction. Which is the *Materia Perſpirabilis.*

APH. XXI.

Indigeſted Food by how much the more Nouriſhment it contains, is ſo much the worſe, becauſe it occaſions either a greater increaſe of Weight, or degenerates into a greater Corruption.

APH. XXII.

The Body becomes lighteſt by the Corruption of Food, becauſe the more liquid Excrements are of all much the heavieſt.

EXPLANATION.

In the former *Aphoriſm*, the Corruption ſpoke of is to be underſtood chiefly that which happens in the Veſſels, after the Food has paſt the *Lacteals*; but in the latter, that which is brought about in the Stomach, thorough indigeſtion, and always goes off with a *Diarrhœa*; by which means the Blood being defrauded of its due Supply, and the Quantity of the Perſpirable Matter leſſen'd by its being diverted another way, the Body cannot but be render'd lighter.

Meats of great Nouriſhment, are ſuch whoſe conſtituent Parts are large, but their Textures and Combinations ſo weak, that they are ſoon broke in the Stomach ſmall enough to get thorough the *Lacteals* into the Blood; where the compreſſive Force upon them being not ſtrong enough to fit them for Perſpiration, they remain longer in the Body, and conſequently render it heavier.

DIGRESSION I.

Of Fermentation and Corruption, ſo far as they relate to the Animal Fluids.

IT may be neceſſary further alſo to explain what is to be underſtood, by the Corruption of any thing within the Body, and this is to be known by conſidering how this Change of a Parcel of Matter, which is called its Corruption, is brought about without it. It has been demonſtrated, firſt by Sir *Iſaac Newton*, and ſince more particularly with regard to the minute component Parts of leſſer Bodies, by Dr. *James Keil*, of *Animal Secretion*, and Dr. *Friend* of *Oxford*, in his *Prælectiones Chymicæ*, That *all Bodies whatſoever attract and are attracted of one another*; by Virtue of which Power in any heterogeneous quieſcent Fluid, there always will be an inteſtine Motion of its conſtituent Parts, whereby ſeveral Corpuſcles will be generated *de Novo*, by the Cohæſions of Parts that were before ſeparate, and others by their Attritions and Occurſions one againſt another will have their Angles ſtruck off, and upon that Account both looſe their former Figures and Properties, and occaſion the Production of a Set of new Particles, ſometimes very different from what before exiſted in that Fluid: And this inteſtine Buſtle will goe on until the ſeveral Parts have obtained ſuch Poſitions, as perfectly correſpond with their Specifick Gravities, and that they equally attract and are attracted by one another: And the Change a Fluid undergoes hereby is greater or leſſer, according to the Attractive Powers of its component Parts; which are ſometimes ſo great as to raiſe a ſtrong Fermentation and ſometimes actual Fire, (although indeed every inteſtine Motion ariſing from theſe Cauſes, tho' in never ſo low a Degree may juſtly be call'd Fermentation) and ſometimes alſo the Properties and *Phaſes* of Bodies are hereby ſo much alter'd, and in ſuch a manner, as when they are ſaid to be putrify'd, or corrupted.

Now this Inteſtine Motion of a Fluid, is prevented, in a great Meaſure at leaſt, by the continual Agitation of its containing Veſſels, or by its Propulſion, thorough Canals, eſpecially ſuch as are *Conical* and *Diſtractile*; in the firſt Caſe, the Motion of the containing Veſſel, will communicate and impreſs ſuch Motions upon the ſeveral Parts of the Fluid, as are contrary to the Directions of their Attractive Powers, and ſo deſtructive of their natural Cohæſions, as to cauſe thoſe Particles frequently to recede from one another, which otherwiſe when left to obey their proper Attractions, would run into cloſe Contacts with one another. And in the latter Caſe, although the Fluid be propell'd at its firſt ſetting out, in a Direction parallel to the Axis of the Canal, yet its *Conical* Figure will all the way give ſuch Reſiſtances to ſome of its Parts, which muſt neceſſarily ſtrike againſt its Sides, as to deflect them from their firſt Directions, and thereby make ſuch a continual ſhifting and changing of the Poſitions of the ſeveral Parts with Relation to one another, as is alſo inconſiſtent with thoſe Cohæſions, as in obedience to their mutual Attractions they otherwiſe would be drawn into.

This being premiſed, it will eaſily appear, That as the conſtituent Parts of a Fluid cannot obey their reſpective Attractive Powers, when put into Motion by any external Cauſe, as when left at reſt, ſo likewiſe that ſuch external Force may be ſo proportion'd, as to allow of the Attractions and Cohæſions of ſome Parts, wherein that Power abounds, at the ſame time when it is yet conſiderable enough to prevent it in others, where that Power is more languid; and therefore that at the ſame time, ſome Parts of an agitated Fluid may ſo much obey their attractive Powers, as to induce amongſt them the Changes above mention'd, more or leſs, as the Motions impreſſed upon them *ab extra*, are intended or remitted. That is, in ſhort, That the Animal Fluids will more or leſs tend to Corruption or Putrefaction, according to the Degrees of Motion impreſſed upon them by their contractile Veſſels.

To this Purpoſe it appears, That the three ſeveral kinds of Motion in the Blood, taken notice of by *Gulielmini* in his *Exercitatio de Sanguinis Natura & Conſtitutione, Sect.* VI. *pag.* 21. is very juſt and rational. His Diſtinctions of the ſeveral Motions are into what he calls Circulary, agitative or confuſed, and fermentative: The firſt depends upon the Impulſe it receives from the Contraction of the Heart, by which it is thrown out of its Ventricles into the Arteries, and by their reciprocal Contractions and Dilations, carried thorough its whole Circuit. The ſecond is occaſion'd by its different Reſiſtances, for in the very ſame *Section* of an Artery, it moves ſwifter about the Axis, than near the Circumference, by the greater Reſiſtances it meets with from the Sides of the Veſſel, being more retarded there than in the middle. Whereupon it not only moves with unequal Velocities, but has ſome of its Parts alſo continually deflected from their firſt Directions, and thereby confuſedly hurried along, ſometimes at the Centre, and ſometimes at the Sides. The third ariſes from the Cauſes before-mention'd, and is therefore greater or leſſer, as the other increaſe or abate.

This Theory will eaſily Account, not only for the Contents of the two foregoing *Aphoriſms*, but of a great many more likewiſe of this *Section.* See alſo *Explanat.* to *Aphoriſm* XLVIII. below, and hence without any Difficulty are deduceable the Reaſons of that Corruption of the Food which frequently happens in the Stomach and Bowels, and occaſions Vomitings and *Diarrhœas*, and likewiſe that which is brought about in the Veſſels and Secretory Glands in ſuch as are called Putrid Fevers: With a good *Rationale* alſo of their Symptoms and Cures. Hence too it appears why, according to the XXIſt *Aphor.* Meats of the greateſt Nouriſhment tend moſt to Corruption: Becauſe they conſiſting of Parts groſs, and not eaſily reduced fine enough for Perſpiration, altho' divided from one another; upon which they are retained longer in the Body, and apt to obſtruct the Capillary Veſſels, and give ſuch a Weight, and conſequently a Retardation to the circulating Juices, as diſpoſes them more to inteſtine and fermentative Motions, and bring them into State of Corruption or Putrefaction.

APH. XXIII.

Pork and *Muſhrooms* are bad, both becauſe they do not Perſpire themſelves, and becauſe they hinder the Perſpiration of other things eat along with them.

APH. XXIV.

Pork and *Muſhrooms*, occaſion the Body to perſpire leſs than uſual a third Part.

EXPLANATION.

Very groſs and ill fed *Hogs-Fleſh*, and *Muſhrooms* ill managed, may have the Conſequences herein mentioned. But common Experience proves, as they are generally ordered, they make very agreeable and wholſom Food, but the latter eſpecially a good pleaſant Sauce. Young well fed *Pork* affords excellent Nouriſhment, and with its uſual Sawce, *Muſtard*, even by weak Stomachs, digeſts and perſpires well, where therefore there have been too large Evacuations, or Injuries received by long Faſting, 'tis very proper, eſpecially if Care he taken to eat light Meals, and often: But very ſparingly indeed ought it to be uſed by thoſe who incline to err on the other Hand by too great a Fulneſs. See *Aphor.* IV. and V. of this *Section.*

APH. XXV.

Melons Perſpire ſo little, that they leſſen the Quantity uſually diſcharged by a fourth Part.

APH. XXVI.

The Perſpirable Matter retained by their Means generally goes off by Urine or Sweat.

EXPLANATION.

If it be underſtood here, that they goe off this way in ſuch as are ſtrong, the Reaſons will appear from *Explanat.* to *Aphor.* XIV. of this *Sect.* For in a ſtrong Perſon when ſuch things get into the Blood which cannot be broke ſmall enough for inſenſible Tranſpiration, they will yet be enough digeſted for Expulſion by Senſible Tranſpiration, which is Sweat, or by Urine.

APH. XXVII.

New *Currants* or *Raiſins*, and *Figgs* ſomething leſſen Perſpiration, both of themſelves and other Food: but it may be by increaſing the ſenſible Evacuations.

APH. XXVIII.

That Sort of Food beſt perſpires, and affords the moſt ſuitable Nouriſhment, whoſe Weight is not perceived in the Belly.

EXPLANATION.

Becauſe what is of a ſtrong Contexure, groſs, and hard of Digeſtion, will remain a long time in the Stomach and Guts, and occaſion a ſenſe of Weight and Uneaſineſs.

APH.

APH. XXIX.

A plentiful Meal is more injurious to Perſons of little Action, than thoſe who exerciſe much: For in the unactive the Bowels will be more burthen'd, whereas by Exerciſe that Weight is removed.

EXPLANATION.

By the Advantages of Exerciſe, not only the preſent Meal will be better digeſted, by its aſſiſting that Agitation and Compreſſion of the Food, upon which Digeſtion depends, but alſo the Muſcles and whole Nervous Syſtem, will be thereby harden'd and corroborated, ſo as at all times to perform the Animal Functions, with more Eaſe and Regularity, than in thoſe who lead inactive and ſedentary Lives.

APH. XXX.

The Body beſt perſpires with that Food, whoſe Fæces or Recrements, paſs thorough the Guts hard and conſiſtent.

EXPLANATION.

Becauſe if Digeſtion is perfected in the firſt Paſſages, that is in the Stomach and Guts, it ſeldom happens but it goes on well to the laſt, until a due Quantity is prepared for Perſpiration; and whereas when it ſo happens, the thinner Part of the Food muſt needs be taken up by the lacteal Veins and convey'd to the Blood; what remains for Expulſion by Stool cannot but be hard and conſiſtent.

APH. XXXI.

Chicken does not nouriſh even ſo much as *Lettice*, if ſuch a Quantity of it be eaten, that it turns into thin corrupted Stools.

EXPLANATION.

For whatſoever is put into the Stomach, and a *Diarrhœa* immediately enſues from its Corruption there, it will all paſs off by Stool, and thereby deſtroy the Body of its Nouriſhment; as has largely been explain'd already. It may therefore be ſo circumſtanced that the moſt nouriſhing Food may ſometimes afford a leſs ſupply to the Body, than that which in its ſelf contains the leaſt Nouriſhment.

APH. XXXII.

By weighing it may be known, when Faſting will be of Service, and when not: It will be ſerviceable, when all the former Days Food is not thoroughly perſpired; otherwiſe it will be hurtful.

APH. XXXIII.

When the Body by Diet is reduced below its natural Standard, what Strength is loſt thereby, is irreparable. That there is a greater and leſſer Standard of Weight even in Health, appears already from the LXIVth *Aphor.* of the Firſt *Section*, and from the XLth of this.

EXPLANATION.

This cannot be true, unleſs it be by too ſlender a Diet for a long time, until the Solids are deſtroy'd. For we often ſee Perſons much reduced both by want of Food and Diſtempers, who recruit again, after great loſs of Subſtance, and recover their former Strength.

APH. XXXIV.

If it be known exactly how much Food is convenient for every Day, ſuch a Perſon may eaſily preſerve his Health and Strength to a great Age, as appears by the ſame *Aphoriſm*.

APH. XXXV.

The Strength of Nature is much impaired by Eating at Supper ſometimes four Pounds, at othes ſix.

EXPLANATION.

There is nothing more confirm'd by common Experience, than that the Body cannot be put out of its accuſtom'd way of living, even although ſuch as is deſtructive to another Perſon, without receiving ſome Prejudice, and therefore it is not likely that it ſhould be agreeable frequently to alter the Quantities of Food, but on the contrary it muſt be very hurtful, by ſometimes over-loading the Solids, and at others, by not giving them ſufficient Reſiſtances, and thereby diſturbing their wonted Contractions.

APH. XXXVI.

That Quantity of Food is moſt healthful, when after Eating a Perſon is as lightſome and active, about any Labour, as when faſting.

EXPLANATION.

This is a very good and eaſie Rule for any one to obſerve, who would be careful of their Health.

APH. XXXVII.

The Body is more burthen'd from eight Pounds taken in at one Meal a Day, than with ten Pounds in a Day, at three ſeveral Meals.

EXPLANATION.

Becauſe the Stomach by too large a Meal is over-ſtretch'd and weaken'd, and therefore cannot diſcharge the ſame Quantity taken in at once, ſo eaſily by much, as it might if taken in at ſeveral times in ſuch Quantities, as do not over-reach and deſtroy the Springs of its conſtituent Fibres.

APH. XXXVIII.

That Quantity of Food to every one is moſt healthful; which without any uneaſineſs can be perfectly digeſted: And that it is perfectly digeſted may be known by the Sum of the Evacuations anſwering the Quantities taken in; which will appear by weighing.

APH. XXXIX.

That Quantity of Food may at all times be ventured upon, which Nature is able to Concoct, Digeſt, and perſpire.

EXPLANATION.

Concoction and Digeſtion are pretty much the ſame as to their Cauſes, and the manner by which they are effected, and differ in little elſe than in the Parts of the Body wherein each is brought about. By Concoction *Sanctorius* ſeems always to mean that Alteration which is made upon the Contents of the Stomach, by the Agitations and Attritions of its Coats; and by Digeſtion, that further Change which is made upon it when brought into the Blood, by the continual Contractions of the Arteries. The Recrements of the former are expell'd by Stool, and the latter by Perſpiration.

APH. XL.

If Nature is able to digeſt a hundred Pound Weight of Food, and that Quantity is abridged to Ninety nine Pound: The Body in time will be much injured by it.

EXPLANATION.

Becauſe there will be a proportionate Decay of the Strength of the Solids, by the want of a full Supply of the *Liquidum Nervoſum* into their conſtituent Fibres, and thereby a haſtening of Diſeaſes and Death.

A P H. XLI.

Good nutritious Juices promiſe a laſting State of Health, when the Quantity perſpired, is in a mean between an Exceſs, and a Deficience: The Exceſs is when after a good Meal over Night, the greateſt Quantity perſpired amounts for the moſt part to forty Ounces or thereabouts; and in a Deficiency to fourteen Ounces. Such ought therefore to be the Quantity of Food in order to arrive at an healthful old Age, that will bring the Quantity, which goes off by inſenſible Tranſpiration, to Twenty two Ounces.

EXPLANATION.

Compare this with *Aphor.* LXIV. *Sect.* I. wherein the Computation of the Quantity perſpired ſomething differs from what it is here.

A P H. XLII.

The Opinion of *Celſus*, That the Non-naturals ought ſometimes to be uſed ſparingly, and at others very liberally, is not ſafe for all Perſons.

EXPLANATION.

Becauſe ſuch a way of living cannot but very much deſtroy that ſettled Standard of Weight, in which *Sanctorius* with a great deal of Reaſon, places a perfect Health. See *Aphoriſm* XXXV, of this *Section.*

A P H. XLIII.

A Body is reduced to its wonted Weight with much leſs trouble, by eating four Pounds at a Dinner, and the ſame Quantity again at Supper, than by taking in ſix Pounds at Dinner and two at Supper. See *Aph.* XXXVII. *Sect.* III. with its *Explanations.*

APH. XLIV.

He deſtroys himſelf that eats once a Day beſides his ordinary Meals, be it more or leſs.

EXPLANATION.

Becauſe ſuch a Practice ſupplies the Body, faſter than it is able to digeſt the Food, and fit it for its proper Offices, and Evacuations.

APH. XLV.

The Body will be rendered heavier by four Ounces of very nouriſhing Food; as *Pork*, *Eels*, and all *fat Meats*, than by ſix Ounces of a ſlender Nouriſhment, as *Fiſh*, *Chickens*, ſmall *Birds*, and others of the like Kind.

EXPLANATION.

Becauſe that which is very nouriſhing remains longer in the Body, as has been already proved, and is not ſo ſoon fitted for Perſpiration.

APH. XLVI.

Meats of a ſlender Nouriſhment, if they digeſt with difficulty, it is in the firſt Concoction only; but with thoſe which are very nouriſhing it is thorough all of them.

EXPLANATION.

Thoſe things which afford but a ſmall Nouriſhment, if they are not well digeſted in the Stomach, which is called the firſt Concoction, they paſs away by Stool being too groſs and ſolid to enter the *Lacteals*; but thoſe Meats of a more plentiful Nouriſhment, altho' they are not well digeſted in the Stomach, yet they are yielding and fine enough, a great Part at leaſt, to get thorough the *Lacteals*, and ſo mix with the Blood; and the Attrition, or digeſtive Power being not ſo great there as in the Stomach, they will remain not perfectly digeſted thorough all the Circulations; and therefore in weak People ſuch Food ought to be Eat the oftner, and leſs at a time.

APH. XLVII.

Food of very ſmall Nouriſhment, cools and looſens the Bowels, is ſoon digeſted, and aſſiſts Perſpiration both in Sleep, and waking.

EXPLANATION.

Such Food for the Reaſons before given, carries but a ſmall Quantity into the Blood, and that very fine, and what quickly flyes off by Perſpiration; and therefore the greater Part of it remains in the Guts, and cools them by keeping them moiſt, and alſo affords a greater Supply to the Diſcharges by Stool, and muſt be for theſe Reaſons likewiſe moſt ſuitable after long Fevers, or any Diſtempers where there has been a conſiderable Waſt made of Strength and Subſtance.

APH. XLVIII.

Food of much Nouriſhment is binding unleſs it corrupts; it is difficulty digeſted, and perſpires but little.

EXPLANATION.

Food of much Nouriſhment is binding, only as it paſſes in greater Quantities into the Blood, and thereby leaves the leſs to be diſcharged by Stool; that is, a Perſon goes leſs to Stool with ſuch Food, than at other times.

By Corruption is meant, ſuch a State of Putrefaction as is acquir'd by Fermentation, as explain'd under *Aphoriſm* XXII. of this *Section*, which ſee. Now thoſe Meats of great Nouriſhment, abound with very active Particles, that is, with Particles that ſtrongly attract one another, which if they cannot be prevented in their Cohæſions, and alter'd by the Juices of the Stomach, will mutually attract and act upon one another as in a Fermenting Body, and conſequently tend to Corruption, and the Production of Corpuſcles *de Novo*, of different Figures, Gravities, and Diſpoſitions, from what before exiſted therein; and by this means they may become Purgative, both as *Stimuli*, and as by their Quantity, (little or none getting thorough the *Lacteal* Veſſels) they muſt of neceſſity, by the Periſtatick Motion of the Inteſtines, be thrown off by Stool,

APH. XLIX.

Where there is a Difficulty of Digeſtion, there Perſpiration is ſlow.

EXPLANATION.

Becauſe the Matter to be perſpired, is broke ſmall enough and fitted ſo to paſs off by a previous Digeſtion, that is by the Agitations and Attritions it undergoes in the circulating Veſſels; and therefore it is impoſſible but that the Quantity which is waſted by inſenſible Tranſpiration, ſhould both increaſe and decreaſe, in proportion to that which is prepared and ſupply'd by previous Digeſtion, unleſs when by ſome Cauſe the cutaneous Paſſages are ſtraighten'd, whereby the Perſpirable Matter, altho' otherwiſe digeſted enough to get thorough, has not room to paſs off.

APH. L.

That Food ought to paſs firſt, not as it is a Fluid, but as it contains a leſſer Nouriſhment, for the *Pylorus* is not as in a Dog at the bottom of the Stomach.

EXPLANATION.

That is, to paſs out of the *Stomach* into the Guts, which by its Situation and Make in Men, favours the Paſſage of the better Juices firſt, becauſe by its being higher at the further Orifice, which is called the *Pylorus*, than in the middle, the lighteſt and moſt diſſolvable Parts, which are the moſt nouriſhing, are thrown over firſt.

APH. LI.

There are three Inconveniencies ariſe from a Variety of Meats; Eating too much, Digeſting too little, and not Perſpiring enough.

APH. LII.

The time of leaſt Perſpiration, is when the Stomach is full, eſpecially if it be ſo with a Variety of Meats.

EXPLANATION.

If the Contents of the two preceding are true, as there is ſufficient Reaſon from what has been already ſaid, to believe ſo, *viz.* That ſeveral kinds of Food taken in at one Meal hinder Perſpiration, they are in a much happier Condition, as to their Health, who can be ſatisfy'd with a Meal upon one Joint of Meat, than thoſe who riot in Luxurious Varieties.

APH. LIII.

Whoſoever Vomits up his Supper, looſes the uneaſineſs at his Stomach, but the next Morning his Body will ſeem heavier: For Vomiting diverts the Perſpirable Matter inward; which if it be acrimonious will occaſion Laſſitude and Heats, but if it offends only in Quantity, a greater Weight.

EXPLANATION.

Both the Propoſition here and the Reaſons for it are not true without conſiderable Reſtriction. For Vomiting in moſt Caſes promotes Perſpiration, as has already been proved, by the forceable Motions it gives to all the Muſcles, thereby breaking that Viſcidity of the Fluids, which before hinder'd it; therefore whenſoever Vomiting has the Effects here mention'd, of rendering the Body heavier, it muſt either be by its long and frequent Repetitions, or by its throwing up the Supplies of a good Meal, when the Body ſtood much in want of it; for in both theſe Caſes the Spirits will be exhauſted, and the Elaſticity of the Solids depending thereupon, very much deſtroy'd; upon which Account the Body will ſeem heavier, but not really be ſo, becauſe there can be no abſolute increaſe of Weight, but only a decay of Strength, which produces the ſame Senſe of Weight. See this more largely explained *Aphoriſm* XXVIII, XXIX. *Sect.* I. By the LIVth *Aphoriſm* of the Firſt *Sect.* Indeed it appears that Vomiting hinders Perſpiration; but then it is to be underſtood only, as one Evacuation always hinders another, that is by diverting or drawing off another way, that Matter which ſhould ſupply it; and therefore by this, although Perſpiration is leſſen'd, yet the Body is not e're the heavier thereby, becauſe in Proportion to the Decreaſe of the Quantity Perſpired, ſome other Evacuation is enlarg'd. When Heat follows upon ſuch Vomiting, it is not by any Acrimony of the Perſpirable Matter, but ariſes from theſe Motions and Agitations of the Fluids, which they are neceſſarily put into by ſuch ſtrong Compreſſion and Exerciſe of the Muſcles; that the Heat of the Body ariſes from ſuch Cauſes; ſee *Aphor.* LXVIII. *Sect.* I. That Laſſitude which alſo enſues, is only from cutting off a Supply of Spirits, as is above explained.

APH. LIV.

He who Eats more than he ought, ſuffers in the neceſſary Quantity of Nouriſhment.

EXPLANATION.

How too large a Meal burthens the Stomach and hinders Digeſtion. See *Aphor.* XXXVII. of this *Section.*

APH. LV.

They who are uſed to immoderate Eating when young, ſtretch the Stomach too much, by which means afterwards they come to digeſt with great Difficulty, even a moderate Quantity.

EXPLANATION.

Temperance in Eating and drinking is good at all times, but eſpecially while young, becauſe Irregularities and Exceſſes therein, and early Debauches ſo much deſtroy the natural Conſtitution and Strength of the *Viſcera*, by the weakning of their Springs, that they cannot long be able to diſcharge their proper Functions, and therefore if they do not bring Fevers and immediate Death, they never fail to haſten on a Diſeaſed old Age.

APH.

A P H. LVI.

He who would be ſettled in a ſtated and moderate way of living, muſt uſe Meats of light Nouriſhment; by which the Stomach will ſoon be emptied, and return to its moſt natural and contracted Capacity.

EXPLANATION.

While the Stomach is full, upon Eating a large Meal, it is in a State of Diſtenſion much greater than when empty, and all the Fibres of which its Coats are compoſed, are upon a ſtretch much greater than what is natural to them; in which State if they be kept too long, like a Bow too long and overmuch bent, they will looſe their Springs, aud not be able any longer to perform their Offices. Such Meats therefore muſt be moſt likely to preſerve a healthful Conſtitution, which are moſt eaſily digeſted, and paſs out of the Stomach ſooneſt.

A P H. LVII.

It may be known how much is convenient to Eat, by obſerving ſeveral Days together, whether the Body returns to the ſame Standard after Sleep without any uneaſineſs.

EXPLANATION.

Becauſe waking cheerful and lightſome, is an infallible Sign, that whatſoever is taken in is well digeſted, and converted to the ſeveral Purpoſes which the Exigences of the Conſtitution require; whereby the Body is not only kept cleared of any ſuperfluous Load, but alſo every Wheel of the Machine is preſerved fit for Motion.

A P H.

APH. LVIII.

If after a plentiful Supper a Body the Day following is lighter than uſual, it becomes ſo either by a Corruption of the Chyle, or becauſe Nature has been irritated to expel what is uſeful, which is very injurious: For there cannot but be ſome Diſpoſitions towards a Diſtemper, when what is uſeful is evacuated, and Crudities are detained.

APH. LIX.

If a Supper of eight Pounds corrupts in the Stomach, the next Day the Body will be lighter than after a Supper of three Pound, which does not do ſo.

EXPLANATION.

By Corruption of the Food in the Stomach and Bowels, and the Conſequences of it, eſpecially in occaſioning *Diarrhœas,* is to be underſtood that Change which it undergoes by an inteſtine or fermentative Motion, which ſee largely explained under *Aphor.* XXII, XLVIII of this *Section.*

APH. LX.

Thoſe Meats which are more ſuitable for Perſpiration, do not corrupt, and even upon Nocturnal watchings will preſerve a Perſon from Heavineſs and Wearineſs.

EXPLANATION.

Becauſe from a very good digeſted Meal, the Solids will be invigorated by ſuch a plentiful Stock of Spirits, as to be able to continue their reſpective Offices a conſiderable time without Decay, although Sleep it ſelf which is ſo ſerviceable to that Purpoſe be for a while wanting.

APH. LXI.

Food which does not perſpire, occaſions Obſtructions, Putrefactions, Laſſitudes, Sadneſs, and an Increaſe of Weight.

EXPLANATION.

The Reaſon of all which may eaſily be collected from what has been ſaid before, under *Aphor.* XLIV, XLV. *Sect.* I. compar'd with ſeveral others.

A P H. LXII.

The worſt Condition a Perſon can be in, is when upon a good Digeſtion, the Body ſeems heavier, and in reality it is lighter than uſual.

EXPLANATION.

This is a Caſe that I think can never happen, for a good Digeſtion is not poſſible to be performed without Strength and Vigour in the Solids; and ſuch Strength depends upon a due Supply of couvenient Juices to them; and therefore where there is a good Digeſtion, as herein is ſuppoſed, the Body can never be in any bad Condition; unleſs from ſome ſudden Accident from an external Cauſe.

A P H. LXIII.

If any one takes in a ſuperfluity of Meat or Drink, and the ſenſible Evacuations increaſe thereupon, the Body the following Day will be lighter than uſual.

EXPLANATION.

Becauſe by thoſe Evacuations it is a great Chance if a great deal more is not carried off than ought to be, by which the Body will not only be render'd lighter, but alſo much weaker, by being defrauded of its neceſſary Recruits.

A P H. LXIV.

The Liquid Food is Specifically heavier than that which is Solid: For it keeps at the Bottom, but the Solid ſwims. A Cup of Wine or Broath is much heavier than Bread.

EXPLANATION.

After the Food is diluted, mixed with the Juices of the Stomach, and converted into Chyle, it matters not much what form it was in before it came there, and it is not true univerſally, that the Liquid Food is ſpecifically heavieſt, for a great many ſolid Meats are heavier than ſome Liquids. This *Aphoriſm* is much the ſame as the XXVIIIth *Sect.* I.

APH. LXV.

If too much Drink makes the Eyes watery after Sleep, it is a ſign the Body has not ſufficiently perſpired.

EXPLANATION.

An Overcharge of Spirituous Liquors does frequently ſo much increaſe the Bloods Motion and Force, as to carry ſome of the Juices thorough Paſſages not deſign'd for them, and make undue Secretions even when there is no Diminution of Perſpiration : But when Perſpiration is hinder'd or any other Evacuation, if the Solids preſerve their Strength, the detained Matter Nature never fails to throw off by ſome other Outlets, wherein the Glands about the Eyes may have their ſhare.

APH. LXVI.

If after hard Drinking a Perſon ſweats much, or makes much Urine ; it is a ſign of great Strength or great Weakneſs.

EXPLANATION.

In this Caſe thoſe Evacuations may be owing to either the forceable and frequent Contractions of the Solids in ſtrong Perſons, whereby they throw off the ſuperfluous Load, or to their relaxed State in weak People, by which they yield to its Diſcharge thorough the ſame Paſſages upon the ſmalleſt increaſe of Impulſe ; but the Conſequences will be very different, for the former will afterwards be lightſome, and receive little or no Injury, provided it be not repeated too often, ſo as to wear out the Elaſticity of the Solids, whereas the latter, will be long diſorder'd, the weakneſs of the Solids retarding their Recovery.

APH.

APH. LXVII.

Water Drinking hinders inſenſible Perſpiration, but promotes the Senſible Evacuations.

EXPLANATION.

Long Courſes therefore of the Mineral Waters, eſpecially the *Chalybeate*, cannot but be very injurious in ſeveral Conſtitutions, by diſordering and diverting ſo neceſſary an Evacuation. A few Repetitions of them in ſome Caſes may be of great Service, but in the beſt Conſtitution in the World a long uſe will too much wear thoſe Paſſages by which they are accuſtomed to go off, and render it very difficult to bring thoſe Evacuations afterward to their natural and proper Quantities. Thoſe Diſcharges likewiſe which have been diminiſhed during ſuch Cauſes, will with Difficulty be recovered, the ſecretory Organs by diſuſe, ſubſiding and looſing their proper Capacities.

APH. LXVIII.

The cuſtomary Drinking, even amongſt temperate Perſons in this Age is ill proportioned, for to about Twelve Ounces of Meat, they drink Forty Ounces or more.

EXPLANATION.

A great many very ſtrange Habits and Appetites are acquired by ill Cuſtom, which Nature was never the Author of, but nothing worſe than frequent Tipling. Experience teaches us, that a great many who have been ſo happy as to keep their Appetites undebauch'd, can and do enjoy a perfect Health, without ever drinking but at Meals, and then too but very ſparingly, and are never at other times thirſty or deſirous of Drink. Mr. *Locke* in his *Thoughts of Education*, very much blames the Cuſtom of giving Children Drink often as a Lullaby when froward, becauſe in time it brings on an habitual Thirſt, and he ſays that he once lived in a Houſe where there was a young Child that could not talk, that drank more Liquor in the Space of four and twenty Hours than himſelf, and this ill Practice he fears is a dangerous beginning and preparation for good Fellowſhip. It is poſſible indeed to err on the other hand, by not drinking a ſufficiency to dilute the ſolid Food in the Stomach, but there are few of this number, and the greateſt Danger to the Conſtitution is from the other Extream; for nothing is more certain, than by how much the more is taken in, than is ſufficient for the Exigencies of Nature, by ſo much the ſooner will the Body be wore out; becauſe by ſuch means all the ſecretory Organs, are more and faſter wore away than is needful, and the Elaſticity of all the Solids ſooner decays; juſt as it happens in the Wheels and Springs of any Machine, the greater Streſs is laid upon one, and the faſter the others move, the ſooner it neceſſarily wares out, and loſes all its Power of Motion.

APH. LXIX.

A temperate Liver generally perſpires in a Night three Pound: And ſuch a one, if he be of a ſtrong Conſtitution, after a plentiful Meal may perſpire five Pound.

APH. LXX.

Faſting is beneficial to a heavy full Body, to a temperate one hurtful, but moſt of all ſo, to one that is weak.

EXPLANATION.

By a heavy full Body is to be underſtood, ſuch a one as has not for ſome time evacuated in Proportion to the Quantities taken in, whereupon there has ariſen a *Plethora*, and in ſuch a Caſe nothing can be of greater Service, ſo its continuance has not been long enough to alter the natural Qualities of the Fluids, than Abſtinence, and a very ſlender Diet, becauſe by ſuch a way of living will ſoon be ſubſtracted the Overcharge, and the Body reduced again to its wonted Standard. But Abſtinence in a Perſon not ſo overcharged, cannot but bring the Body below its healthful Standard, and therefore muſt needs be hurtful, but more eſpecially to a weak Conſtitution, becauſe ſuch a one will with the greateſt Difficulty recover its Loſs.

APH. LXXI.

A plentiful Meal after long faſting will increaſe Perſpiration a Pound more than uſual.

EXPLANATION.

But this muſt be in very robuſt Conſtitutions where the Solids are very ſtrong, otherwiſe ſuch a plentiful feeding would over-reach the Fibres of the Stomach, and diſable them for thoſe neceſſary Contractions upon which Digeſtion depends, and thereby the Body would be leſs nouriſhed, than from a light Meal, and therefore a leſſer Supply afforded for the cuticular Diſcharges.

APH. LXXII.

After immoderate Exerciſe, to feed very plentifully is not good: Becauſe a weary Body perſpires with Difficulty.

EXPLANATION.

This alſo confirms what is ſaid under the former *Aphoriſm*, ſuch Exerciſe ſtrains and weakens the Solids, inſomuch that they are not able afterwards to repeat their Contractions with that Strength and Quickneſs, as is neceſſary to circulate and digeſt a full Meal as it ought to be, to render it ſuitable, either for the Occaſions of the Oeconomy, or Perſpiration, and therefore muſt needs leſſen the Quantity to be diſcharged that way. By immoderate Exerciſe alſo the Veſſels will be ſo much emptied, as to occaſion a quicker Derivation of a freſh Supply, than is conſiſtent with its due Digeſtion, and thereby the *Capillaries* will be fill'd with a Viſcid groſs Matter, which will hinder Perſpiration. See under *Aphoriſm* XLIV. *Sect.* I.

APH. LXXIII.

When ſober and temperate People go off with ſudden Sickneſs; it is much wonder'd at by their Friends, becauſe they have no Notion of Inſenſible Perſpiration.

EXPLANATION.

I very much queſtion, whether any Diſeaſe ariſing from an Obſtruction of Perſpiration, ſuddenly kills, for it is plain that this Diſcharge may be conſiderably diſturbed, without being attended with ſuch fatal Conſequences; and alſo that it never is put out of order without giving ſufficient notice by a great many uneaſineſſes and ill Symptoms. By ſudden Sickneſs, therefore is not to be underſtood Convulſions and Apoplexies, but acute Fevers, which moſt frequently ariſe from an obſtructed Perſpiration, and ſometimes have their Riſe and Periods in a few Days.

APH. LXXIV.

High Feeding and Drinking for ſome time conceals not only the Acrimony of the obſtructed Perſpirable Matter, but even the Diſtempers of ſome of the leſs conſiderable Parts; which as ſoon as Perſons come to uſe Purges or Abſtinence, ſuddenly break out, and diſcover very ill Symptoms.

EXPLANATION.

Such a way of Living keeps up a continual Stock of Spirits, and heats the whole Body in ſuch a manner, that there is little Room afforded for cool Reflexion; and the Mind is either in ſuch a perpetual hurry, or ſtupidity, that it is render'd uncapable of attending to, or being affected by what paſſes in the Body; but as ſoon as the Body is cool'd, either by Evacuations or Abſtinence, and the Mind recovers its Capacity of Reflexion, thoſe Grievances which were before not at all taken notice of, will give a great deal of Pain and Uneaſineſs. It is not therefore ſo much a wonder that a Perſon who has been long accuſtomed to ſuch a way of Living, is ſo difficult to be reformed, becauſe the Repetitions of his Bottles are like ſo many Doſes of *Opium*, and as he ceaſes to be a Sot, he grows miſerable.

APH. LXXV.

That Phyſician who has the Care of the Health of *Princes*, and knows not what they daily perſpire, deceives them, and will never be able to cure them, unleſs by Accident. This is the ſame as *Aph.* II. *Sect.* I.

APH. LXXVI.

In the four firſt Hours after Eating, a great many perſpire a Pound or near; and after that to the ninth, two Pound; and from the ninth to the ſixteenth, ſcarce a Pound. Compare this with the LVIth *Aphor. Sect.* I.

APH. LXXVII.

That is the moſt proper time of Eating, wherein the Body comes to ſome Healthful Standard, as it enjoyed the Day before, when empty: But that *Apollo* himſelf cannot find out, without the Ballance.

EXPLANATION.

That is, there is no way of knowing with certainty when the Body comes exactly to ſuch a Weight, without bringing it to a Tryal by the Ballance. But I believe it will be thought an Experiment too troubleſome to put in Practice; and a Perſon ſtudious and obſerving may exactly enough collect when that time is, which is moſt proper to eat in, by its preſent Plight, without any trouble of weighing himſelf: And if the Experiment ſhould be once try'd, and the times of Eating ſettled accordingly, it is a great Chance but ſome Accident or other may make it convenient to alter them by the very next Day.

APH. LXXVIII.

If a Debauch over Night proves Injurious, and can neither be well digeſted nor thrown off by a Looſeneſs, the Advice of the following Verſes is good.

Si nocturna tibi noceat Potatio Vini,
Hoc tu mane bibas iterum, & fuerit Medicina.

If over Nights Debauch does hurtful prove,
A Glaſs next Morning will your Pains remove.

EXPLANATION.

Too latge a Quantity of Spirituous Liquors, ſtimulate the Solids ſo much while they remain in the Body, that as ſoon as their Strength is ſpent the Solids become weaker than before, and ſo much that very often they will not be able to throw off thoſe groſſer and more Viſcid Parts of the Liquor, which always remain to the laſt, without the aſſiſtance next Day of a moderate Quantity of the ſame, whereby the Remains of the former may ſtill be agitated and kept in Motion, until by Degrees it is carried away by ſome of the Evacuations.

APH. LXXIX.

If the Weight of a healthful Body after Supper, be two Hundred Pound, and that Body be afterwards weaken'd by too much Venery, its Weight will then not exceed, a hundred and ninety eight Pound. Becauſe the *Languor at that time contracted*, will leſſen the Quantity of Food uſually converted into Nouriſhment, by two Pounds.

EXPLANATION.

This properly belongs to the Sixth *Section*, which ſee.

APH. LXXX.

Meats that are eaſily perſpirable, more eaſily, and with much leſs difficulty and trouble recruit the decay'd Strength, than ſuch as are hard to perſpire, and of groſs Nouriſhment.

EXPLANATION.

The Difference between Meats which eaſily perſpire, and ſuch as are very nouriſhing, has in ſeveral Places been taken notice of already, from which it may be concluded that they commit a great Error, who give to weak and decay'd Perſons, thoſe things which are generally received to be of the moſt ſubſtantial Nouriſhment, as *Panadoes* much boil'd, *Chocolate*, *Milk*, and other thick Glutinous Spoon-Meats, for ſuch, although they contain a great deal of Nouriſhment,

riſhment, yet upon that very Account they require much more Strength and Vigour in the Solids to digeſt them, and intimately mix them with the Animal Juices, than a great many kinds of Food which in themſelves are not ſo nouriſhing. And from what has been ſaid before of *Mutton*, and our common Experience about it, it ſeems very probable, to be the moſt ſafe and agreeable Food in any extraordinary decay and waſt of Strength, where there is no Danger of raiſing a Fever.

APH. LXXXI.

Any turbid new Liquor if it digeſt in the Stomach, it will not only perſpire well it ſelf, but alſo aſſiſt the Perſpiration of other Meats : Of this Kind alſo are hot flatulent Liquors.

EXPLANATION.

The Reaſon why ſuch Liquors help Perſpiration is, becauſe, if they are well mix'd with the Stomachick Juices and the other Food, they paſs with it thorough the *Lacteals*, and make Part of the Animal Fluids, which, by their aptitude to Fermentation, as it is well known all ſuch Liquors have, they very much aſſiſt in their Motions, and continually by their Activity help to divide and break them in ſuch a manner, as is neceſſary to fit them to paſs that way. It is alſo to the ſame Activity and Diſpoſitions of their conſtituent Parts that the following,

APH. LXXXII.

Onions, *Garlick*, *Mutton*, *Pheaſants*, but above all, *Cyrenaick Juice*, aſſiſt the Perſpiration of ſuch Meats, as in themſelves are not eaſily perſpirable,

APHORISMS *added by the* AUTHOR.

APH. LXXXIII.

A very ſmall Portion of Meat, is not perceivable in the Stomach; and therefore it neither digeſts, nor nouriſhes, nor perſpires.

EXPLANATION.

It muſt be underſtood here after long faſting, and when the Stomach is thereby very much weaken'd, whereupon a ſmall Quantity taken in at a time has not Spirit and Warmth ſufficient to invigorate its Fibres, but lies uſeleſs and undigeſted.

APH. LXXXIV.

The Matter of inſenſible Perſpiration is the Excrement of the third Concoction: And therefore if the firſt is not made, the third alſo will be wanting.

EXPLANATION.

If the Food paſſes the Stomach without due Digeſtion, which is called the firſt Concoction, ſo much of it as gets into the Blood, by its Groſsneſs and Crudity will of Courſe hinder the reſt of the Secretions, by preventing the due Attritions and Secretions of ſuch Parts as are neceſſary thereunto, being in themſelves too ſolid and bulky to be broke by the Force of the Arteries.

APH.

A P H. LXXXVI.

By obſtinate Faſting, the Head will be filled; the Temples heated; the Hypochondres diſtended, and the Arms and Legs enervated.

EXPLANATION.

To account fully and clearly for all thoſe Symptoms will neceſſarily go into a great Length, becauſe they are not to be underſtood without a conſiderable Acquaintance with the Mechanical Conſtructure and Oeconomy of the Body, It is neceſſary therefore to premiſe, that in the Body there are two chief Springs or Principal Inſtruments of Motion, *viz*. The *Dura Mater*, and the *Heart*, They both agree in this, that by alternate Dilatations and Contractions, they take in and throw out again certain Fluids, which by the Veſſels or Pipes annexed to them are convey'd to all Parts of the Body. One of the Fluids is the Blood, and belongs to the Office of the *Heart*, and its Appendices the Arteries: The other is the *Succus Nervoſus*, or what is commonly called the *Animal Spirits*, which has its Motion and the Continuance of it into all the Parts, from the Alternate Pulſations of the *Dura Mater*, and the *Tonick* Motion of the whole nervous Syſtem.

Now the Motions or Powers of theſe two chief Wheels or Springs of the Machine, have a mutual Dependance and Influence upon each other. That of the *Heart* upon a due Influx of the nervous Juice or *Animal Spirits*, ſeparated from the Blood in the *Brain*, and brought to it by the Contractile force of the *Dura Mater*, thorough its annexed Nerves: For without this and a continual Supply of it, all the Muſcles of the Body, loſe their Springyneſs and grow uncapable of Motion. And as the Motion of the *Heart* thus depends upon a due Influx from the *Brain*, ſo that of the *Dura Mater* depends upon a due Circulation of Blood through the *Brain*, becauſe from it is ſeparated and deriv'd that Juice or *Animal Spirit*, upon which both its own, and the Motions of all the Solids depend: So that whichſoever of theſe Parts is injured, and thereby the Motions of their reſpective Fluids diſturbed, the other of neceſſity muſt alſo ſuffer thereby. For a more large Account of this, conſult carefully *Baglivi de Fibra motrice & Morboſa.*

Thus far being once ſetled, it will then eaſily appear that by obſtinate Faſting, firſt the Blood will be leſſen'd in Quantity, next the Secretions made from it leſſen'd, and laſtly the Solids will loſe their Springs and Power of Motion. But whereas the contractile Force of the Solids may continue by the help of their preſent Stock of *Spirits*, ſometime after the Blood becomes defrauded of its Supply, the Velocity of the Blood will be increaſed, as long as that Stock remains; for leſſening the Reſiſtances of a moving Body is the ſame, as adding to its motive Powers; upon which Account the Blood will be thrown more forceably into the extream Parts, amongſt which the Head for a while will have its ſhare. Now this Encreaſe of the Velocity of the Blood will while it continues, quicken and raiſe the Pulſe univerſally throughout the Arteries; but as in ſome Parts more than others, there is greater Room for their Expanſion, which makes what we call the Pulſe; ſo in the Temporal Arteries, they being more ſtraightned by the circumambient Parts, there will be a greater ſenſe of that Pulſation, than any where elſe; as it occaſions a greater Uneaſineſs, and as the Stroak is chiefly to be felt externally, upon applying the Finger to the Artery. But it not being poſſible for this Additional Encreaſe of the Bloods Motion to continue long, after the ſupply of the nervous Fluid, and the Invigoration of the Solids is cut off, as ſoon as the preſent Stock decays, the whole Conſtitution muſt ſuffer, and not only a greater ſenſe of Weight will be felt in the Head, but all over, and for the ſame Reaſon are the Limbs enervated, and loſe their Strength.

The Diſtention of the Parts about the Belly, is occaſioned by the Diverſion of a great deal of the perſpirable Matter, that would otherwiſe have paſſed the outer Skin, by the way of the *Viſcera*; for that Emptineſs and Defection of *Spirits*, firſt from within very much takes off the *Vis à tergo*, by which thoſe Steams were uſually propell'd towards the Circumference, and gives thereby greater Liberty for them to collect themſelves within, by which the Hypochondres are neceſſarily diſtended in an unuſual manner. Hence may further be obſerv'd the Reaſon why a great Diſtance between the times of Eating is bad, eſpecially between Supper and Breakfaſt; and that for ſuch who are troubled as they call it with Wind, it is much better to Eat little and often, than large Meals and ſeldom.

A P H. LXXXVIII.

The Loſs which a Body ſuffers for want of Food, is greater than by a Purgative Medicine; becauſe, this indeed promotes ſenſible Evacuation, but it leſſens inſenſible Perſpiration.

EXPLANATION.

As Perſpiration is the moſt conſiderable Evacuation, ſo whatſoever leſſens it, although at the ſame time ſome of the Senſible Evacuations are thereby increaſed, will keep up at leaſt, if not increaſe the Weight of the Body, ſo long as the proper Quantities are taken in; but where that is united, without any ſenſible Evacuation, the Body cannot but very much fall off both of its Bulk and Strength.

A P H. LXXXVII.

In a cold Conſtitution, where the Stomach is empty, thorough the omiſſion of a Supper over Night, the next Morning drying and over-dreſs'd Meats are very ſerviceable.

EXPLANATION.

For in ſuch Conſtitutions, at ſuch times, the Stomach cannot but be nauſeated by the Quantity and Acidity of its own Juices continually draining into it, and frequently alſo inflated with an overcharge of rancid Steams, ariſing from inward Perſpiration, both which all drying things, as all over-dreſſed Meats more eſpecially are, very much help to abſorb and diſperſe, and if a plentiful uſe of Coffee is ever good, it muſt be ſo with theſe kind of Conſtitutions in a Morning.

APH. LXXXVIII.

If one Meal a Day of about four Pound proves injurious, the ſame Quantity taken in two or three Meals, may be of ſervice: For too great a Fulneſs of the Belly diverts Perſpiration. See *Aphoriſm* XXXVII, XL, and XLIII of this *Section.*

APH. LXXXIX.

They need not fear any Diſtemper, who diligently take care that they be not overcharged with Crudities.

EXPLANATION.

Any one who ſets a due Value upon his Health, will ſtudy Temperance, and obſerve what is moſt agreeable to his Conſtitution, which will prevent any Crudities or undigeſted Matter from increaſing in his Body; but if by any external unavoidable Cauſe, as the hinderance of Perſpiration by ſome ill Diſpoſition of the external Air, an Obſtruction ſhou'd happen, it will diſcover it ſelf early enough to be remedy'd in time, and therefore no Danger of a Diſtemper need be feared where ſuch due Care is taken.

APH. XC.

It is better for Ancient People to eat three times a Day, as *Antiochus* did, than but twice, or but once, becauſe the laſt hinders Perſpiration. See *Aph.* LXXXVIII. above.

APH. XCI.

Why would not *Antiochus* eat Fiſh at Supper? Becauſe they hinder'd Perſpiration, for that which is made in the time of Sleep is moſt of Service, and without it the Strength languiſhes.

EXPLANATION.

Concerning the Inconveniences of a Fiſh-Diet, See *Explanation Aphor.* VIII. *Sect.* III. and for the Reaſon of the latter Part. *Aphoriſm* XX, XXI. *Section* I.

APH. XCII.

The Juice of *Cucumbers* by its Coldneſs and Groſsneſs remains in the Veins: And ſeveral other impure Juices, although eaſie to digeſt, by hindering Perſpiration, occaſion malignant Fevers.

EXPLANATION.

Common Experience teaches us that moſt kinds of Fiſh are prejudicial in all ſuch Diſtempers as have their Riſe chiefly from a Siezeneſs and Viſcidity of the Juices, as in Agues and Rheumatiſms, and are moſt commonly occaſioned by Obſtructions of Perſpiration; and as ſuch things which hinder Perſpiration, at all times are bad; ſo they are certainly worſt of all at Supper, becauſe in the time of Sleep, the Body receives the greateſt Benefit by that Diſcharge. *Cucumbers* and ſeveral other things abounding with cold Viſcid Juices, are alſo hurtful much in the ſame manner, by thickning and bringing a *Lentor* upon the Animal Juices, and thereby obſtructing the perſpirable Matter, which in time will acquire very noxious Qualities, ſooner or later, as the preſent conſtitution of the Air, more or leſs favours its Corruption, and occaſion putrid and malignant Fevers.

A P H. XCIII.

Why does a Putrefaction of the Food occaſion a Laſſitude? Becauſe it hinders Perſpiration: But how? By cauſing a *Diarrhœa*: How does a *Diarrhœa* occaſion a Laſſitude? By carrying off with the Excrements a great deal of the uſeful and well digeſted Juices.

EXPLANATION.

This contains what has been ſaid, and largely explained under ſeveral of the foregoing *Aphoriſms* concerning a Putrefaction or Corruption of the Food. See *Aphor.* XXII, *Section* III.

A P H. XCIV.

He who eats a plentiful Supper upon a wearineſs, as ſoon as he ſleeps will perceive a Coldneſs and Laſſitude: But about twelve Hours after Supper, all will be well: Becauſe by that time Digeſtion will be perfected, and Perſpiration ſerviceable.

EXPLANATION.

Nothing is more common than a Chyllineſs and Liſtleſneſs to Action after a large Meal; the Reaſon is both becauſe the Remains of a former Meal in the *Lacteals* and *Receptaculum Chyli*, is ſuddenly thruſt forward thereby into the Blood; and becauſe the additional Weight, and Preſſure of the Contents of the Stomach upon the Blood-Veſſels, there is ſome ſmall Check given to the Motion of the Blood, upon which ariſes a ſenſe of Cold; for the Heat of the Body, as was proved before, is always as the Velocities of the circulating Fluids, and therefore whatſoever retards their Motions, makes the Body by ſo much the colder. The Rigors and Shudderings alſo which People are frequently ſenſible of after

ter a plentiful Repaſt, are owing to the more contracted State of the Fibres: For the Capacity of the Stomach being much enlarged, the Nerves of the whole Body by the Communication of one Part with another, will be drawn thereby ſomething ſtraighter, which, in ſtrong People eſpecially, cannot be done without ſome Reſiſtance, whereby there will be occaſioned thoſe ſhort tremulous Vibrations of the Fibres, and whenſoever a plentiful Meal is eat upon great emptineſs of the Veſſels, as after long faſting or hard Exerciſe, theſe Effects are more perceivable than at other times, becauſe the new made Chyle, which is always more viſcid than the Blood, ſooner gets into the Arteries: Wherein by a good Conſtitution after a few Hours it will be ſufficiently broke, and Digeſtion will be perfected, and Perſpiration made in due Quantity, upon which the Body will ſoon be recruited with a freſh Stock of Spirits and Nouriſhment, and again return to its uſual Standard of Weight.

APH. XCV.

Food after violent Exerciſe is hurtful, both becauſe it is not well received in the Stomach, and becauſe it hinders Perſpiration.

APH. XCVI.

He who eats with a troubled Mind, digeſts much leſs, than one who is eaſie and chearful.

EXPLANATION.

Nothing is more certain, than that the Paſſions of the Mind, have a great Influence upon the Animal Functions, concerning which, See further, *Sect.* VII.

APH. XCVII.

To Drink between Dinner and Supper is hurtful: But if we drink ſo much the leſs for it at Supper, its Inconveniencies will thereby be removed. See *Aphor.* LXVIII. *Sect.* III.

APH. XCVIII.

To Vomit after Supper is weakning, becauſe it defrauds the Body of its Aliments, and alſo becauſe it hinders Perſpiration.

EXPLANATION.

The hinderance of Perſpiration is a Conſequence of the former, as it is explained under *Aph.* LIII. *Sect.* III. and therefore unleſs it be Medicinal, and to remove ſome greater Evil, it is always injurious.

APH. XCIX.

An Exceſs of Eating and Drinking, once or twice a Month, the next Day without any ſenſible Evacuation, will render the Body lighter than uſual.

APH C.

They who uſe a regular Diet, want the Benefit of thoſe who Debauch once or twice a Month: For the Perſpiration occaſioned by the Irritation of ſuch an overload is ſo great, as not to be believed without weighing.

EXPLANATION.

Theſe two laſt run counter to ſeveral of the foregoing, whereby it appears, that a temperate way of living is abſolutely neceſſary to a good State of Health, and if Exceſs is ever paſſed over without Damage, it muſt be where the Conſtitution is robuſt, but frequent Repetitions of ſuch Practices will wear out the beſt in the World; and whoſoever pretends to debauch, although but twice a Month for Healths ſake, it is to be feared will find a time for Repentance.

A P H. CI.

In cold Conſtitutions Honey is ſerviceable, becauſe it nouriſhes and perſpires; but in hot it is hurtful, becauſe it turns to Bile.

EXPLANATION.

Honey may be reckon'd of the ſame Kind with thoſe of *Aphor.* LXXXI, LXXXII. *Sect.* III. and produce the Effects mentioned in the former Part of this, for the Reaſons therein given. And that in hot Conſtitutions it produces Bile, is becauſe that Juice is the Produce of too great an Agitation and Heat of the Blood, whereby its Parts are too much broke, that inſtead of ſupplying the Secretions in the uſual manner, they run into preternatural Cohæſions, and form ſuch Particles as are fitted only for the Secretion of thoſe Organs, that are conſtituted for ſuch a ſeparation.

A P H. CII.

Nothing hinders Perſpiration more than to drink during Chylification.

EXPLANATION.

This muſt be underſtood of immoderate Drinking, whereby the Stomach becomes diſtended in ſuch a manner, as to hinder Perſpiration by the means above taken notice of, as every thing which over fills the Stomach will do; but if it is not in a quantity to overload it, I cannot ſee how it can have any ſuch Effect.

APH. CIII.

By cooling the Liver it leſs attracts the Chyle, and much the leſs promotes Perſpiration.

EXPLANATION.

That the Liver attracts Chyle at all is a miſtake, and owing to a want of better Knowledge in Anatomy, eſpecially in the Circulations and Secretions of the Fluids, for the Chyle as ſuch, never comes at the Liver; or is there any ſuch thing poſſible as heating or cooling the Liver, but by the Conſent of the whole Body; and therefore the Virtues aſcribed to ſome particular Medicines, as more immediately warming or cooling any particular Part, are meerly imaginary.

APH. CIV.

When in a ſound Body the Belly is looſe, it is either becauſe Digeſtion is not well made in the Stomach, or from an Expulſion of the Chyle by an obſtructed Perſpiration.

EXPLANATION.

An Obſtruction of the perſpirable Matter will ſo over burthen the Solids, that if they are ſtrong, they will be irritated to throw it off by other Evacuations, which is the reaſon why the ſtoppage of one Evacuation is always the increaſe of another.

APH. CV.

A good Conſtitution may ſuffer two ways; either by living intirely without Exerciſe, or by Eating before the Digeſtion of a former Meal.

EXPLANATION.

The former will further appear in the Vth *Sect.* and the latter is very plain from what has been ſaid already.

Medicina Statica.

SECT. IV.

Of SLEEP *and* WATCHING.

APHORISM I.

SOund Sleep ſo much promotes Perſpiration, that in about Seven Hours, ſtrong Conſtitutions will frequently perſpire Fifty Ounces.

APH. II.

With Seven Hours Sleep, the Body inſenſibly perſpires, and without any Trouble, twice as much as when awake.

EXPLANATION.

WHether the Quantity here reckoned upon, will always anſwer upon Tryal, and whether the Difference is ſo great between the cuticular Diſcharge in time of Sleep, and when awake, as here aſſerted, is not very material to enquire into; or is it indeed poſſible, that this Evacuation ſhou'd be found the ſame in different Countries, different Seaſons, or different Conſtitutions; and therefore Allowances are to be made, upon any ſuch Tryal; but that Perſpiration goes on more regularly and freely in the time of Sleep than when awake, is certain, and for the Reaſons given under *Aph.* XXI. XX. *Sect.* I.

APH. III.

That Perſpiration in Sleep, which is attended with Sweat, does not carry off more than when it is inſenſible, and without Sweat.

EXPLANATION.

This may be true, but not without Reſtriction, for without Doubt, in thoſe Sweats with which an Ague Fit commonly goes off, there is a much greater Diſcharge made for the Time, than is ever made by the largeſt inſenſible Perſpiration in the ſame Space of Time, and I very much queſtion, whether the Body can any other way more effectually be prepared for a large Diſcharge by the Pores of the Skin, than it is by au Ague Fit: becauſe the Concuſſions made by the Yawning and Shivering which precedes it, wonderfully breaks the Viſcidity of the Juices, which obſtructs the capillary Veſſels, and thereby are very conducive to promote this Evacuation. But from ſeveral *Aphoriſms* of the foregoing *Sections*, as well as this, it appears, that Perſpiration which is inſenſible, is the moſt neceſſary and moſt ſerviceable Evacuation, and that generally it carries off a much greater Quantity when rightly perform'd, than Sweat, although this appears moſt ſenſible upon its Expulſion. Where therefore 'tis practicable to draw off any additional Weight of the Body by Perſpiration, it is much better done that way, than by any other Diſcharge; becauſe thereby no unneceſſary Strain or Irritation is given to the Conſtitution, whereby it may afterwards ſuffer, and therefore moderate Exerciſe, and a temperate Uſe of the *Non-naturals*, may much more eaſily bring about this good End, than the Vertues of the moſt celebrated Medicines.

APH. IV.

The Body is lighter after Sleep, both by an Increaſe of Strengh, and the Waſt of, at leaſt, Three Pound of Excrement.

EXPLANATION.

A Waſte of Subſtance alone, without keeping up the ſame Stock of Spirits, that is, without preſerving the ſame Invigoration and Elaſticity of the Solids, will not make the Body ſeem any lighter than before, becauſe although there is a Diminution of its *abſolute Weight*, ſo long as there is alſo a proportionate Decay of Strength, a Perſon will have the ſame Senſe of Weight as before; but as by Sleep after a good Digeſtion, there is both made a waſte of Subſtance, by what is thrown off by inſenſible Tranſpiration, and alſo at the ſame time, a freſh Supply of Spirits given to the Fibres, a Perſon cannot but both really be, and ſeem alſo lighter; ſuch Diſcharges therefore which are of the greateſt Benefit to the Conſtitution, are thoſe by whoſe Expulſion ſuch Matter only is thrown off, as is well digeſted and of no farther uſe to be retained in the Body; and when at the ſame time, ſuch Diſpenſations are made of all the animal Juices, to the ſeveral Parts of the Body, as the due Performance of their reſpective Functions require.

APH. V.

Interrupted and unquiet Sleep, leſſens the Quantity uſually thrown off by Perſpiration, about a third Part.

APH. VI.

Perſpiration in ſound Sleep is ſometimes greater, than what is made by Exerciſe in the ſame Compaſs of Time.

EXPLANATION.

This *Aphoriſm* is exactly the ſame with ſeveral of the former, and agrees alſo with many of the following *Sections*; but whether it be true in the greateſt Latitude is very much to be doubted, for the Reaſons given under *Aph.* III. of this *Section.*

APH. VII.

In the Morning Sleep, after the firſt Digeſtion is perfected, about a Pound of the perſpirable Matter goes off in an Hour: but if that is not perfected, not above a Quarter ſo much.

EXPLANATION.

How abſolutely a previous Digeſtion is neceſſary to Perſpiration is abundantly manifeſt from what has gone before: and therefore where that is defective, this Diſcharge cannot but very much fall ſhort, at whatſoever Time it happens; but more eſpecially in a Morning, when the Body otherwiſe would be much the moſt diſpoſed to it. The greateſt Care alſo at that time ought therefore to be taken that it be not interrupted; becauſe a Perſon then receives from it the greateſt Benefit.

APH. VIII.

Whatſoever hinders Sleep, hinders alſo the Perſpiration of that digeſted Matter which ought to exhale.

EXPLANATION.

Becauſe by Sleep, as has been ſaid before, the Solids are relaxed, and the cutaneous Pores laid more open, by which the perſpirable Matter has more Room to fly off.

APH. IX.

Short Sleeps are occaſion'd by the Acrimony of ſome obſtructed perſpirable Matter; and the perſpirable Matter is often obſtructed, by Natures being more than uſually employed about ſome of the internal Functions.

EXPLANATION.

The former Part is very true, and the Reaſon of it very plain, for the Juices lodged in the Glands and ſecretory Paſſages, oftimes acquire a Sharpneſs, by which they vellicate the Fibres, contract them, and prevent that true Relaxation of the Solids as is neceſſary to procure a ſound and undiſturbed Sleep. But as to Perſpiration being hindred by Natures having ſomething elſe to do within, I cannot underſtand any otherwiſe, than as it is explained under *Aph*. LVII. *Sect*. I.

APH. X.

The Acrimony of the obſtructed perſpirable Matter, moſt commonly affects the Head, diſturbs Reſt, and hinders the Perſpiration of the upper Parts.

EXPLANATION.

In what Part ſoever the Nerves are irritated, the Head is generally moſt injured thereby, becauſe from thence they have their Origine, and it is ſooner by that means drawn into Conſent with the ſtimulated Part than any other; and as it was proved before under *Aph.* XLIX. *Sect.* I. that all Pain in general, in whatſoever Part it hath its Seat, will contract the Nerves, and thereby hinder Perſpiration, ſo of Conſequence where the greateſt Pain is, there will be the greateſt Contraction, and the leaſt Perſpiration.

APH. XI.

If any one after Sleep finds Pain in his Arms, or a more than ordinary Wearineſs, it denotes the Body to be heavier, and ſo much, that Nature cannot long bear up under it.

EXPLANATION.

Such Pain and wearineſs after Sleep, when a Body ought to be moſt lightſome and refreſhed, are a certain Sign both of an obſtructed diſtemper'd Matter, and of ſome Defect in that Secretion of the nervous Fluid, by which the Solids are to be invigorated; neither of which Diſorders can continue long, without bringing the Body into ſome Ill Diſtemper.

APH. XII.

Whoſoever ſleeps with his Legs and Hips bare, will perſpire that Night a Pound leſs than uſual.

EXPLANATION.

Becauſe the Perſpiration of thoſe Parts, will be obſtructed by the Coldneſs of the Air, which, if its Effects went no farther than thoſe Parts expoſed to it, would prove that by this Calculation, their Superficies would be about a Fifth of the whole Body, ſuppoſing alſo, all Parts to exhale near the ſame Quantity, when equally covered from the Cold. But as the leaſt Irritation of any particular Part, will more or leſs, according to the greater or leſſer Tenſions and Elaſticity of the Fibres at that time, draw other Parts likewiſe into a Conſent therewith, no one can foretel, what will be the Conſequences of a partial Application of ſuch Means to the Body, or how much Perſpiration will be hindred thereby.

APH. XIII.

Continual Reſtleſſneſs in Bed, agitates the Body more than ſwift running: for in the Motion of One running, the Muſcles of the lower Parts only are moved, whereas by turning about in Bed often, thoſe of the whole Body are concerned.

EXPLANATION.

Such reſtleſs Motions in the Bed, are without Doubt more injurious to a Perſon, than the Exerciſe of ſwift Running, as they keep the Solids in a contracted State, at that time when Nature requires them to be relaxed, as in ſound Sleep, in order to perform the Buſineſs of Perſpiration, but that a greater Streſs is thereby laid upon the Muſcles is a

Miſtake, or that in every Reſpect, the Body is more agitated; for by ſwift Running, not only thoſe of the Legs are exerciſed, but all the Muſcles of the whole Body by Conſent are ſtrained, but eſpecially thoſe of the *Thorax* and lower Belly in Reſpiration are put into very briſk Motions; and as for thoſe of the Arms, I believe there are but few who run very faſt with their Hands in their Pockets.

APH. XIV.

Perſpiration is hindred more in the time of Sleep by a cool Southern Air, than when waking by an intenſe Cold.

EXPLANATION.

Becauſe in that relaxed State, the leaſt Preſſure and Contraction imaginable is diſcernable and injurious, and the Pores likewiſe at that time lying opener, the exhaling Matter is the more eaſily ſtopped and fixed in its Paſſage: Whereas when awake, although the external Air be intenſly cold, as long as the Solids are firm and keep their Springs, their Contractions will be ſmarter and more frequent, and the perſpirable Matter thereby ſo much broke, as to be fitted to fly off through much narrower Paſſages.

APH. XV.

If the Nights Sleep is leſs than uſual, the Exhalation of the Digeſted perſpirable Matter will be leſſned; but that of the Undigeſted increaſed.

EXPLANATION.

In time of Sleep by the Laxneſs of the Fibres and Openneſs of the Pores, there is moſt Room for the perſpirable Matter that is well digeſted, to go off; when therefore it is interrupted, and the Solids drawn up, as they are in waking before the due Quantity is gone off, there will a great deal be detained, which by the Actions of a waking Perſon, will afterwards be expelled, but not without a mixture likewiſe of ſome Parts, not yet broke far enough for that Diſcharge, as it is performed during Sleep.

APH. XVI.

From Meat of eaſy Perſpiration, the Body is render'd weaker, rather than heavier; but from Meats difficult to perſpire, both weaker and heavier.

EXPLANATION.

This *Aphoriſm* properly belongs to the foregoing *Section* of *Meats and Drink*, in which it appears at large, that Food of eaſy Perſpiration beſt undergoes that Digeſtion which is made in the Blood, and therefore is moſt ſuitable to weak Perſons, and ſuch who have loſt much by any Diſtemper or long ſlender Diet: But as it alſo contains the leaſt Nouriſhment, that is does but little enter into the Subſtance of the Body, ſuch is the leſs fit for Perſons in Health, eſpecially thoſe of robuſt Conſtitutions: becauſe by it, altho' the Body is in the leſs Danger of being overcharg'd, yet it is very likely at the ſame time to loſe conſiderably both of its Bulk and Strength; becauſe there is not Nouriſhment enough in it to recruit the continual Waſt of the Solids. But when Meat is of difficult Perſpiration, altho' it digeſts in the Stomach, and paſſes the *primæ viæ* never ſo well, yet it tends to make the Body both heavier and weaker; for it encreaſes the Weight of the Body by not paſſing off in ſufficient Quantities by inſenſible Perſpiration, as hath been before prov'd of ſuch ſort of Food; it being too groſs and viſcid to get that way; and it renders it weaker, both by the additional Weight of what is retain'd, and by its not being broke or digeſted enough in the Arteries, to be converted into that Spirit or *Animal-Oil*, which is neceſſary to enable the Solids to perform their ſeveral Offices.

APH. XVII.

The perſpirable Matter which goes off during Sleep, differs ſpecifically from what paſſes when awake; for the former is the reſult of a good Digeſtion, without Acrimony, and is refreſhing to the whole Body; but the latter ariſes from Crudities, and is ſharp, violent and laborious.

EXPLANATION.

From *Aph.* XX. XXI. *Sect.* I. this Difference has already been explain'd, and may farther be collected, from the Digreſſion concerning a *diſtractile Fibre*, where it appears that the Matter of inſenſible Perſpiration is principally the Recrements of the *Succus Nervoſus*, or that *Animal-Oil* with which all the Solids are moiſtened, broke too ſmall to be of any further Service, and rendred ſo light, as to fly off whenſoever it gets at the Surface; and that tonick Motion of the Fibres, by which this Matter is prepared from that Juice being more regular, and the cutaneous Paſſages more open in time of Sleep, than when awake, it cannot but be more eaſily and more plentifully prepared and diſcharged, at that time then when awake; but at other Times the Nerves being variouſly agitated by the Impreſſions made upon them by external Objects, this Juice has not that regular Propulſion as before; and therefore what happens to eſcape, are only ſuch Particles, as by the Force of the contractile Veſſels, are thrown off.

APH. XVIII.

A Perſon when aſleep, perſpires as much more as when awake, from whence is the accuſtomed Saying, that *an Hours Reſt with Sleep, is as good as Two waking.*

APH. XIX.

Inſenſible Perſpiration, in the Space of Seven Hours during Sleep has been found in a great many, to be about forty Ounces, and in Watching twenty.

EXPLANATION.

The Calculation here agrees with ſeveral of the foregoing. In the firſt *Aph.* of this *Sect.* he indeed makes the Quantity perſpired during ſo long Sleep, fifty Ounces, but then it is to be ſuppoſed, in very ſound uninterrupted Sleep: And as the various Differences of Conſtitutions and ſeveral other Cauſes, may make a Difference in this Evacuation, this will not appear to be at all inconſiſtent.

APH. XX.

Whoſoever goes to Bed with an empty Stomach, that Night perſpires about a third Part leſs than uſual.

EXPLANATION.

Becauſe the Matter of this Diſcharge is not ſupplied in due Quantity, although it is not at all improbable, but that there may ſometimes be a Concurrence of ſuch Cauſes, as at ſuch a Time to occaſion a very plentiful Diſcharge this Way; but then there cannot but ſome Damage or other enſue, either by too great a Diminution of the Fluids or by ſtraining too much the Solids, or by both.

APH. XXI.

Bilious or Cholerick Perſons, who go to Bed without Supper, will be troubled with Crudities in the Head and Belly; their Temples will beat, their Fleſh waſte, and ſtrong Tenſions will ariſe in the Arms and Hands, and ſometimes Twitchings at the Heart, Vertigoes, and Epilepſies, as it happen'd to *Diodorus.*

EXPLANATION.

See *Aph.*LXXXV.*Sect.*III. where this is explain'd at large, why Faſting in bilious Conſtitutions, more particularly than any other, ſhou'd aggravate theſe Symptoms, is becauſe the ſharper and more irritating the Fluids are, the more muſt the Solids be diſorder'd; and ſometimes ſo far as to give Riſe to the above mention'd Diſeaſes: See back alſo under *Aph.*CI.*Sect.*III.

APH. XXII.

A plentiful Supper after a larger Perſpiration than uſual, procures a larger and pleaſanter Sleep.

EXPLA-

EXPLANATION.

Becauſe after ſuch a large Perſpiration, the Nerves will be emptier of their Juices, and ſtand in greater Need of a Supply, therefore upon a good Meal, as ſoon as they are relaxed by Sleep, they will continue ſo, unleſs irritated by any foreign Diſturbance, until the Food taken in by that Meal be well digeſted, and they are thereby recruited with a freſh Stock of Spirits: But,

A P H. XXIII.

A leſs Perſpiration than is needful, is followed by unquiet Sleep and a reſtleſs Night.

EXPLANATION.

Becauſe beſides the additional Load of the obſtructed perſpirable Matter, a full Meal at ſuch a Time, will much encreaſe the Burthen already laid upon the Solids, and thereby render Digeſtion very difficult, and occaſion more Uneaſineſs than is conſiſtent with ſound Sleep.

A P H. XXIV.

If after a ſhort and reſtleſs Sleep the Fleſh ſeems cold, and a little Fever ariſes; in weak Perſons it is a Token of Death, but in the Robuſt, a Forerunner of ſome long Diſtemper.

EXPANATION.

Such a Senſe of Cold after a little Sleep, is a Sign that there is ſome great Diſorder in the Contexture of the Fibres or the Fluid, which ſhould give them their Elaſticity, whereby as ſoon as Sleep comes on, and they fall into a State of Relaxation, inſtead of performing their Contractions more regularly at that Time, as they do in healthful Conſtitutions, they either loſe very much their Motions, or have thrown upon them a Fluid very unfit for that uſe, whereby they come to loſe their due Contractions afterwards, inſomuch as frequently to be followed with very bad Diſtempers, and ſometimes Death, and the firſt Appearance of ſuch Diſorders, may often be by a Coldneſs after Sleep, which ends in a Feaver; becauſe the firſt irregularity hereupon in the Oeconomy, is a partial Diſtribution of the Fluids, and a Retardation of the Bloods Motion, which will always occaſion a Senſe of Cold, as has already been proved. But at firſt, what will be the Conſequences of ſuch Diſorders God only knows, becauſe there are often ſo many ways both of removing the Cauſes, or bringing Death which the Wiſeſt cannot foreſee in Time, either to bring about the one, or prevent the other: but undoubtedly it will fare much the worſt with the weakeſt Conſtitutions, as not being able perhaps to ſtruggle with it. Where Digeſtion has been bad, and Perſpiration leſſened for ſome Days together, it is moſt likely to be diſcovered at the time of waking, becauſe as ſoon as the Nerves are relaxed, and Sleep comes on, that Matter which is intended to be diſcharged by the Skin, will by the natural Courſe of the Circulations be crouded that way, ſo that if the firſt cannot get through, the continual Protruſion *à tergo* of freſh Matter, will at laſt make the Obſtruction ſo great in the Capillary Arteries, and diſtend them in ſuch a Manner, as to occaſion a great deal of Uneaſineſs, and at laſt raiſe a Feaver, and for this Reaſon it is, that the firſt Attack of a Feaver is moſt commonly felt at theſe Times.

APH. XXV.

Changing a Bed occaſions diſturbed Sleep, and leſſens Perſpiration; for an unaccuſtomed Place, although better than before, diſturbs both the Body and Mind.

APH. XXVI.

They who ſleep in a ſtrange Bed, dream more than in their own.

EXPLANATION.

Theſe are obvious to every ones Notice, and are undoubtedly occaſioned only by the Change of Objects which are about a Perſon, and take up his Mind with ſome more than uſual Attention, and thereby prevent that eaſy Relaxation, which is neceſſary both to a good Perſpiration and ſound Sleep.

A P H. XXVII.

They who Sleep and do not Dream perſpire well, and on the contrary, they who Dream much, Perſpire the leſs.

EXPLANATION.

Dreaming is a State between ſleeping and waking, wherein although the Mind does not exerciſe ſuch a Power over the Body, as to direct its Motions in the ſame Degree as when awake, yet by its Attention to thoſe confuſed Ideas which paſs through it, the Solids are kept in ſome Degree of Contraction, greater than is agreeable with ſound Sleep; and therefore Perſpiration which depends upon a ſetled Relaxation, cannot ſo well be performed at ſuch Times, as when in quiet Sleep.

A P H. XXVIII.

Sleep about four Hours after Eating is moſt ſerviceable; becauſe Nature is not ſo buſy at that time about the firſt Concoction, and ſhe then better recruits what is loſt, and better carrys on the Buſineſs of Perſpiration.

EXPLANATION.

From what hath been aboveſaid, it appears that a full Stomach is injurious to Perſpiration, and that Natures being buſy about ſomething elſe, is no more than that during the Load of a full Stomach, the Nerves are more contracted, and thereby there is the leſs Room for the perſpirable Matter to paſs off. It is abundantly manifeſt from Anatomy, that the Courſe of the *Chyle* only from the Stomach into the Blood, is a Conſiderable Length, and that it requires four or five Hours Time to perform that of a whole Meal. By the Weight and Diſtention of the Parts about it, a Perſon may perceive the Food to remain in his Stomach an Hour or two at leaſt; which after it has paſſed in a well digeſted *Chyle* into the Inteſtines, its Stay there is near as long, the *lacteal* Veins although very numerous, being yet ſo exceedingly fine, as not to admit the whole Quantity to paſs them under a conſiderable Time; its frequent Stops in the *meſenterial Glands*, and the *Receptaculum Chyli*, and its ſlow aſcent up the *Ductus Pecquetanus*, fill up ſuch a Space of Time as here ſpoke of: As ſoon therefore as it is got in the Blood, ſuch a quiet and relaxed State as Sleep procures, is the moſt conducive to its regular Mixture with the animal Fluids, and its ſeceſſion, either into ſuch Parts as the ſeveral Exigences of Nature require for Nouriſhment, and the uſes of the ſeveral Parts of the Machine; or ſuch as are fitted, to go off by Paſſages on purpoſe deſigned for thoſe which are of no farther uſe; and this is thoroughly confirm'd by the following

APH. XXIX.

If five Hours after Supper, a Perſon is ſuddenly awakned, and weighed, he will be found to have perſpired barely half a Pound; but if eight Hours after Supper, the ſame Experiment be tryed, three Pounds.

EXPLANATION.

For by this it appears, that from the fifth to the eighth Hour, there goes Six times as much off by inſenſible Perſpiration, or very near, as from the time of Supper to the fifth Hour after.

APH. XXX.

From Sleep ſomething Shorter than uſual, there will always ſome part of the perſpirable Matter be retained, which unleſs it be thrown off, by an encreaſed Quantity of Perſpiration the following Days, will endanger a Feaver.

EXPLANATION.

The Matter to be diſcharged by inſenſible Perſpiration, going off moſt plentifully in the Time of Sleep, it cannot but happen, that when Sleep is interrupted or ſhorter than uſual, ſome part of it muſt thereby be retained in the Body; which if it be not thrown off afterwards by an Increaſe of that Evaccuation beyond what is natural, it muſt needs either bring on a Feaver, or ſome other Diſtemper, that takes its Riſe from ſuch an Obſtruction.

APH. XXXI.

By ſome Part of the uſual Perſpiration being retained, either the next Day after Dinner we fall aſleep, and perſpire in the Space of an Hour, about a Pound: or the following Night Sleep is ſo much the longer, by which more than uſual is perſpired: or elſe we fall into ſome ſenſible Criſis, or a Diſtemper.

EXPLANATION.

This fully confirms the preceding, and is ſo plain as to need no Explanation.

APH. XXXII.

Yawning and Stretching the Limbs after Sleep, is a Sign the Body has perſpired very well; as it is cuſtomary with the Cocks to ſtretch and clap their Wings before they crow.

APH. XXXIII.

That Stretching and Yawning after Sleep, is occaſion'd by a great Plenty of perfectly well digeſted perſpirable Matter, which is in readineſs to be thrown off.

APH. XXXIV.

The Body by yawning and ſtretching, in the Space of half an Hour, perſpires more than in three Hours at any other Time.

EXPLANATION.

Such Extenſions in general, or of any particular Part, according to the Senſe of the three preceding *Aphoriſms*, are owing to ſome gentle and pleaſing Irritations of the muſcular Fibres; and that ſuch Irritations or gentle Vellications are occaſioned by a great Quantity of the digeſted perſpirable Matter hanging about the Surface and extreme Parts of the Body. and not throughly diſcharged, is no difficult Matter to conceive. For it appearing that in time of Sleep, there is a continual Courſe and tendency of a fine thoroughly digeſted Matter towards the Circumference which is diſcharged through the cutaneous Pores, and that during Sleep likewiſe the Nerves are in a State of Relaxation, it cannot but happen, that when a Perſon awakes, both the Courſe of thoſe Steams will be conſiderably diverted, and the Fibres ſomething more contracted; and conſequently the perſpirable Mattet juſt paſſing, detained at the Extremities of the excretory Ducts; which, as the Sleep is ſtill ſhaken off, and the Solids are more and more drawn up, will be ſqueezed ſo cloſe, as at laſt to give thoſe Vellications to the ſmall Fibres, compoſing thoſe Glandules where they ſtick; and inſomuch that ſometimes the Muſcles themſelves are drawn into Conſent, and provoked to thoſe Tenſions and Concuſſions, by which they excite the Stretchings and Yawnings, as at that time we find ourſelves inclined to. And theſe Inclinations continue until all that Matter is thoroughly ſhook off; which by this Means is looſned from its ſmall Entanglement, and diſperſed, as Water is ſhaked off a Wet Sheet, and this is the Reaſon why Perſpiration is ſo large at thoſe Times. This alſo makes it appear, of what vaſt Advantage is a little briſk Action juſt upon riſing from Sleep; and I cannot but be perſuaded, that to leap ſuddenly out of Bed in the Morning, and before putting on any Garments, to leap and throw about the Arms with Weights in each Hand, untill almoſt out of Breath, wou'd be as likely an Exerciſe to keep the Body in a ſound and perfect Health, and to give a Firmneſs to the Conſtitution, as any one thing beſides. See *Aph.* LXXIV. *Sect.* I.

APH.

APH. XXXV.

They who give Syrrups and other Medicines, to ſick Perſons, in the chief Hours of Perſpiration, which are commonly after Sleep, do harm; but in the following Hours good.

EXPLANATION.

Becauſe the Nauſeouſneſs and Uneaſineſs ſuch Things occaſion at Stomach, aſtringes and draws up the Fibres ſo much as to hinder Perſpiration.

APH. XXXVI.

Stretching and Yawning in an *Ague*-Fit, do not denote a Concentatrion of the *Vital-heat*, but an Excretion of a retained perſpirable Matter.

EXPLANATION.

This very well agrees with Dr. *Jones*'s and *Bellini*'s Accounts of thoſe Symptoms in Intermitting-Feavers: And both of them place the immediate Cauſe of an Intermitting-Feaver or Ague, in an Obſtruction of a Viſcid Matter in the capillary Arteries, which by every Paroxyſm is broke away and diſcharged out of the Body, chiefly by Sweat and Perſpiration, upon a plentiful Eruption of which the Fit goes off and all is well, until the Supply and Renewal of the immediate Cauſe brings on another; all which falling in ſo naturally with the Contents of a great many of theſe *Aphoriſms*, and having made theſe Diſtempers more particularly the Subjects of my own Enquiries, I ſhall here in as ſhort a Digreſſion as I am able, give an Account thereof, ſo far as of my own Knowledge it exactly agrees, both with the excellent Accounts of the above-mentioned Authors, and as it is alſo a further Confirmation of the *Sanctorian* Doctrine of Perſpiration.

DIGRESSION II.

Concerning Agues, and their Cure, without the Bark.

And in general, it may not be out of the Way to premiſe, that all periodical Diſtempers have their Riſe from a Diſproportion between the Supply and the Waſte of ſome of the animal Fluids, by which they come to offend in Quantity, or Quality, or Both; and alſo that upon adjuſting this Irregularity, and bringing the Secretions to their natural State, and preſerving the *Equilibrium* between the Force of the Solids, and the Reſiſtances of the Fluids, depends always their Cure. And without entring into the Account of any particular Diſtemper that is periodical, thus much in general may be receiv'd for Truth, for if there was not a Removal of the immediate Cauſe every time it makes its Attacks, the Diſtemper would be continued; and if there were not a Continuance of the remote Cauſes, it would not return: And nothing therefore is more certain than, that in order to make an effectual Cure, there muſt be a Removal of the *Cauſæ remotæ*, or what *Inſtitution* Writers commonly call the *Cauſæ procatarcticæ*, as well as an abſolute Removal of the preſent Fit.

This being premiſed, it may be laid down as a general Propoſition, that *Agues have their Riſe from an increaſed Viſcidity of the Blood.* That this is the State of the Blood in Perſons labouring under this Diſtemper, cannot eaſily be queſtioned, when we come to conſider the Loſs of Colour, want of Appetite, a Senſe of unuſual Weight, Liſtleſſneſs to Action, and a general Coldneſs of the Fleſh; which will further alſo be confirmed when we come to conſider the Means by which this Diſorder is the moſt effectually removed, all of them having a Tendency to heat and thin the Blood.

The Blood becomes too viſcid by an Encreaſe of its Quantity, or by ſubſtracting from the Force of the Heart and Arteries, or by both together. An Encreaſe of its Quantity only, whether it be by a Diminution of any of the Evacuations, or by taking in more than uſual by Food, ſuppoſing the Force of the contractile Veſſels to remain the ſame; the Encreaſe, I ſay, of its Quantity alone in this State, will encreaſe its Viſcidity; becauſe by its giving thereby greater Reſiſtances to the Veſſels in their Contractions, they will not be able to preſs it forward ſo faſt as before, whereupon the attractive Powers of its component Parts, will be greater in Proportion to the Force impreſſed upon them *ab extrà*, and thereby will they run more into mutual Contacts with one another than they did before, and as it hath already been proved from Dr. *James Keil* of animal Secretion Prop. 2. and 9. that the ſpecifically lighter Parts, that is, ſuch Parts as have the largeſt Surfaces in proportion to their Solidities, as they are ſloweſt in their Attractions, and ſtrongeſt in their Coheſions when brought into Contract, ſo upon this Retardation of the Blood's Velocity, will the Encreaſe of their Obedience to their attractive Powers, be greater in proportion, than that of thoſe parts, who have ſmaller Surfaces and greater Solidities; that is the lighteſt and moſt viſcid parts of the Blood will draw one another, more in proportion to what they did in a greater Velocity, than the more heavy and ſolid Parts, and form ſuch Coheſions as will not admit them through the capillary Veſſels, ſo that when they are thrown into them, there they muſt lodge and be obſtructed.

With the ſame Conſequences alſo is attended any Subſtraction of the Force of the Heart and Arteries, when the Blood remains in its natural Quantity, as it is well known in *Mechanicks*, that the weakning the motive Powers of any Body, is the ſame as increaſing its Reſiſtances with regard to its *Percuſſion*, and *vice verſâ*. And therefore all that it concerns a Perſon to know on which Side the Fault lies, is only ſo far as regards the Cure; in which, when a thing is to be brought about ſeveral Ways, (as hereafter I ſhall endeavour to prove That of this Diſorder is) there may ſome Circumſtances turn up, which may make it much more convenient and ſecure to take one way than another. That both theſe Cauſes may alſo ſometimes concur in producing this State of the Blood, is not to be queſtioned; as debauching in Seaſons when the Air is hot and moiſt, for hereby both the Quantity of the Blood is encreaſed, and the Solids weakned at the ſame time; wherein if either of them ſingly will have this Effect, they canot but both together more ſpeedily bring it about.

But beſides the Bloods Encreaſe by too great a Supply from eating and drinking, or a leſſning its Waſt by too flaccid a State of the Solids, or by a Diminution of the ſenſible Evacuations, there is alſo another way of doing it, and that is by drawing up the Solids too ſtrait, which before has been proved always to leſſen Perſpiration, and frequently likewiſe other Evacuations. And in this ſeems chiefly to conſiſt the

Difference between Intermitting Feavers, and acute continued ones, that the latter is owing to too great a Fulneſs, attended with too contracted and too ſpringy a State of the Solids, and the former to too great a Fulneſs, when the Solids are too looſe and flaccid; which are ſo very oppoſite, and require ſuch different Methods of Cure, that whoſoever is not well appriſed hereof, will do more Service to the Sexton than his Patient. And conſidering how manifeſt this Difference is upon any diligent Enquiry, it is to be wondered at, that ſo little Notice is taken of it. It is well known, that the moſt rational and ſucceſsful Practice in acute Feavers, is Diluting, raiſing Sweat, and quieting and abating the too great Springyneſs and Contractions of the Solids, all which is brought about by thin ſubacid Liquors and Juleps, by a gentle Promotion of any of the Evacuations, and keeping the Body as ſtill and free from Motion as poſſible But in Intermitting-Feavers, it is quite otherwiſe, for there all theſe things are deſtructive; and the greateſt Service and moſt effectual Cures, are always brought about by ſuch Means as draw up and encreaſe the Springyneſs of the Nerves; by plentiful Doſes of ſpirituous Liquors, piperine Medicines, Subaſtringents, violent Exerciſe, ſudden Frights and the like: And herein all Evacuations, unleſs that by inſenſible Tranſpiration, and even Sweat it ſelf except to relieve the preſent Fit are always bad, and ſometimes fatal; nay frequently Evacuations, ſoon after a Recovery, return the Diſtemper, and ſometimes with more Violence than before.

Thus then the Matter is drawn into a narrower compaſs, and it appears more particularly that *an Ague is from a relaxed State of the Nerves, and a viſcid Blood together.* Both theſe are brought about by various Cauſes. The Solids ſometimes grow too ſlack by a Diminution of the Atmoſpherical Preſſure upon the Circumference of the Body; for ſuppoſing the Quantities of the Fluids the ſame, or their *Niſus* againſt the Sides of the Veſſels that convey them to remain with equal Strength, whenever the Preſſure of the Atmoſphere decreaſes, the Veſſels will be the more ſtretched, and their Conſtituent Fibres lengthned, in which State their Reſtitutions and Contractions will be weakned: Another external Cauſe alſo may be too moiſt or foggy an Air; which by hanging too much upon the Skin, will hinder the Exhalation of the perſpirable Matter, and both together render it ſo ſupple and flaccid, as in a little Time to draw alſo into Conſent the Fibres of the

whole

Body. Too tender a way of living alſo will render the Solids too looſe, as wearing too thick Garments, lying too much in Bed, continuing much by a Fire-ſide, warm Bathing, and a Diluſe of accuſtomed Exerciſes, There are alſo internal Means by which the Fibres looſe their due Tenſions, as an inſufficient Supply of Food in Quantity, or a Supply of ſuch as by its Quality is not fit to furniſh the Solids with that Recruit of Spirits, as is neceſſary to maintain their Firmneſs and Elaſticity.

The Blood will grow viſcid, and it ſelf be often firſt in Fault, by feeding too plentifully upon ſuch Meats and kinds of Food, as in themſelves have a natural Tendency to run into thoſe Coheſions, as cannot eaſily be ſeparated, and form ſuch Subſtances as are glutaneous and tenacious; of which ſort are *Fiſh*, and ſeveral Fruits, as *Melons*, *Cucumbers* and the like. Another Cauſe likewiſe is a weakneſs of the Spring of the Air, which it is well known, in ſome Seaſons and Places, is much more ſo than in others; for by this only, that Part of it which mixes with the Blood, and ought to raiſe its Globules, will do it ſo faintly, that thoſe Globules will in ſome Meaſure ſubſide, and by that Means their Contacts will be greater, and conſequently their Coheſions ſtronger; that is, the Blood will thereby be rendred more viſcid. But ſtill the moſt common Cauſe of the Bloods Viſcidity, is from a Loſs of the due Force and Elaſticity of the Solids; for whenever this happens, the parts of the Blood by being leſs agitated, cannot but thereby the more attract one another, and form ſtronger Coheſions, in ſuch a Manner as hath already been demonſtrated at large under *Aph*, XXII. *Sect.* III.

That theſe are the Cauſes of Agues or Intermitting-Feavers, and that this is the true State of an Aguiſh Conſtitution, it might further be a great Confirmation, to go through all the Shapes and Symptoms of this Diſtemper, from its firſt Attaks to the Declenſions of its Paroxyſms, and a *Rationale* of its different *Types*; but becauſe this would draw out this Digreſſion into an unpardonable Length, I muſt beg the Reader for further Satisfaction to conſult Dr. *Jones*'s Book *de Febribus intermittentibus* and *Bellini de Febribus*, prop. 18----26. and as the moſt effectual and natural Methods of Cure, are likewiſe a great Addition to the Proof of this Theory, I ſhall content my ſelf only with juſt taking Notice of them.

And firſt nothing is more obvious to this Purpoſe, than that the Viſcidity of the Blood muſt be broke, and this is to be done by ſuch means, as will keep its Parts from running into thoſe Contacts and Coheſions which cauſe its Viſcidity, and as will break and divide thoſe Coheſions when formed. The former is to be done by mixing ſomething with it, as by the peculiar Bulks and Figures of its Parts, may be a hindrance to thoſe of the Blood, which cohere ſo ſtrongly when got together, from coming into cloſe Contact with one another; and the latter by giving them ſuch brisk and forceable Motions, as are ſufficient to ſeparate them when joined.

Now whereas it already appears, that thoſe parts of the Blood that are moſt viſcid, are ſuch as have the largeſt Surfaces, and the leaſt Solidities; what therefore is moſt proper to keep theſe Parts from coming together, muſt be ſomething ſpecifically heavier, that is, ſomething that conſiſts of Parts of much leſſer Surfaces and greater Solidities, whatſoever therefore is endowed with theſe Properties, will if mixed with the Blood in ſufficient Quantity deſtroy its Viſcidity, or at leaſt prevent it from growing more ſo.

But that which is moſt effectual to break its preſent Viſcidity, is to give it very forceable Agitation; for ſeveral parts may ſo ſtrongly cohere as not to be divided by the Inſinuation of any other Particles moving againſt them but faintly, whreas when they are forceably moved and ſtruck one againſt another, by degrees they will be broke, and reduced ſmall enough to be diſcharged by ſome of the Evacuations; this Way likewiſe of breaking the Viſcidity of the Blood by Motion, as it is not to be done but by the Aſſiſtance of its contractile Veſſels, ſo ſuch Concuſſions of the Veſſels, will help to wear away whatſoever Parrs have before been lodged and obſtructed in the Capillaries. This Agitation indeed of the Blood from the Solids, may be very much aſſiſted by ſpirituous and aromatick Compoſitions, which by their ſubtility and activity of Parts, help more intimately to keep up the inteſtine Motion of the Blood.

But further beſides deſtroying the preſent Viſcidity, the Solids muſt be drawn up ſtraiter, and digeſtion and Perſpiration regularly carried on, for after ever Paroxyſm, although the Blood is entirely brought to right, yet if the Flaccidity of the Solids remains, the Vibrations of the Veſſels will not be ſmart enough to digeſt the continual Supply of the Blood, and wear off a proportionate Quantity by Perſpiration, whereupon ſooner or later, as the Solids are more or leſs ſlackned, there will be a Renewal of the Viſcidity and Quantity of the

Blood, until it comes to ſuch a Height as before, when it brought on a Fit; and in this altogether conſiſts a confirmed and laſting Cure of this Diſtemper, that the Solids be reſtored to their natural Firmneſs and Elaſticity; to the Neglect or Ignorance of which, is the Reaſon why it ſo frequently returns, ſoon after the Efficacy of the Remedies which put it by for ſome time, are over: For ſuppoſe for Inſtance, that the Viſcidity of the Blood ariſes barely from the Encreaſe of its Quantity, that the Encreaſe of its Quantity, proceeded only from a Diminution of Perſpiration, (or as we commonly ſay from taking cold,) and that the Diminution of Perſpiration is occaſion'd by the weakneſs or Flaccidity of the Fibres, as moſt commonly indeed in this Caſe, it is thus; then if half a Pound (for Inſtance) of the perſpirable Matter be obſtructed in twelve Hours, and the Quantity of two Pound additional is ſufficient to bring a Fit, then in eight and forty Hours time, there will be a Fit; which if it carries off all the additional Load, and leaves the Blood as before, yet as long as the Cauſe remains, that is the Flacidity of the Solids, in forty eight Hours after, there will be again the ſame Overcharge and another Fit; and ſo on, while things remain in this State, now if ſuch a Remedy is found, that will draw up the Nerves ſo far after a Fit, as to bring ſuch an Encreaſe of the obſtructed perſpirable Matter to four Ounces, then it will be four Days e're there is another Fit; but if this Diſproportion be ſo far removed, as to reduce the Quantity obſtructed to an Ounce only in twelve Hours, then it will be ſixteen natural Days e're the Return of a Fit; and about this length of time it is that, the celebrated *Peruvian-Bark* is found to make a Cure, but as the Cauſe is not entirely removed, there is as much Neceſſity of the Fits returning at the End of ſixteen Days, as there was before of its Return after two Days. And thus appears the abſolute Neceſſity of having a particular Regard to the State and Tenſions of the Solids, in order to make a laſting Cure of this Diſtemper; as well as to the Correction of the Blood and Humours, as People commonly talk, for by this we ſee one will not do without the other.

As both theſe are therefore to be ſet about, in order to effect a perfect Cure, *viz*; to break the Viſcidity of the Blood, and draw up the Solids ſo far as to perform a perfect Digeſtion, and prevent a Re-increaſe of the Bloods Quantity; it is next of the greateſt Concern to know, by what Means both of them are to be brought about, and which of them ought firſt to be attempted. And as to the latter it ſeems plain, that the Viſcidity of the Blood ought firſt to be broke, and what is obſtructed in the Capillaries to be diſlodged; becauſe otherwiſe to draw up the Solids whilſt ſuch Obſtructions remain, is the moſt likely way to tye up the faſter that viſcid Matter, and thereby aggravate the Diſtemper; beſides it will be a Task of Difficulty to bring up the Fibres to their due Force, with ſuch a Load upon them; and for theſe Reaſons 'tis that we frequently ſee ſo much Miſchief done, by giving the *Bark* or any ſuch Remedies as anſwer that Intention of ſtraitning the Fibres, before the *Lentor* of the Juices is ſufficiently removed; although indeed it very frequently happens, that a Removal of the *Lentor* is brought about upon drawing up the Fibres only; as we ſee Perſons frequently cured by Frights, or great Strength of Imagination, upon pretended *Amulets* and *Charms*, and the like; yet as it may be attended with the ill Conſequences above-mentioned, it cannot but be much better to break the *Lentor*, before any ſuch means are attempted; and further becauſe when the Diſtemper has been really removed by the latter Intenetion only, it frequently happens that the morbid Matter is thrown upon ſome of the *Viſcera*, ſo as to diſturb their proper Offices, and according to the Part affected, either produce *Jaundies*, *Cachexies*, or *Aſthma's*; or elſe it remains cloſed up in the Glands and capillary Veſſels, until by ſome freſh Cauſes, the Fibres are ſlackned, and then it never fails to appear in its former ſhape.

It next then is of Conſequence to know by what means and Inſtruments, both theſe Intentions are moſt effectually to be anſwered; the firſt as hath already been taken Notice, is to be brought about by mixing ſuch Particles with the Blood in Plenty, which are both much ſmaller and ſpecifically heavier, than thoſe Parts which form its viſcid Coheſions, and alſo by giving very briſk and ſtrong Agitations to the Solids. The former is anſwered by taking volatile Salts, and all Compounds of Aromaticks and Bitters,as thoſe of the Alexpharmick Tribe generally are, and the latter is done by nothing ſo effectually as by Vomiting, whichnot only drains off from the Stomach, and its Glands, a great deal of this viſcid Matter, but alſo by the forceable Actions it gives to the Muſcles of the whole Body, all the *Viſcera*, and even the extreameſt Parts of the Body, are very much ſhook, ſqueezed, and cleared of their viſcid Contents, which is very manifeſt from the profuſe Sweats which will eaſily ariſe after this Operation, when it is well timed, and a Doſe of ſome good Alexipharmick exhibited after it,

And when this is done, and the Blood rendered duly fluxile, as for the latter Intention, and which indeed is the chief, I hardly know what will not anſwer, under the Management of one who hath any juſt Notions of the Mechaniſm of the Solids; all kinds of moderate Exerciſe, and all Sub Aſtringents will do it. But by Exerciſe I would be underſtood with a conſiderable Latitude, for of this kind I take to be cold Bathing, and whatſoever affects the Mind with intenſe Thought, which will further appear to draw up and give a greater Tenſity to the Nerves, by what will be ſaid in *Sect.*VII. And this is the Reaſon why ſo many are cured by what are commonly called *Charms*, the weakneſs of ſome Minds expoſing them to be intenſly affected, and rais'd with ſtrong Expectations, from the ſtrange and confident Aſſurances, with which thoſe People treat them who deal in ſuch kind of Cures. By all *Sub-Aſtringents* I ſay, becauſe if the *Lentor* of the Blood be firſt removed, whatſoever is rough and gently irritates the Fibres, will draw them up ſhorter, render the Muſcles harder, and effectually make a Cure. But of this kind they are much moſt preferable, which have likewiſe in their Compoſition, ſomething bitter and ſpicey; becauſe by ſuch, both the Intentions are often anſwer'd at once; and upon this Account only it is, that the famous *Indian-Bark* hath had the good Luck to get the Name of a Specifick, which becauſe it is taken for ſuch a celebrated Remedy in this Diſtemper; I ſhall according to the Theory here laid down, briefly examine how it cures an *Ague*, and then it may better be judged, whether any thing elſe can do the ſame or not.

I hope by what hath been already ſaid in the *Introduction*, that the Reader, has got over all ſuch Prepoſſeſſions as incline him to expect any other Virtues or Properties, from any Parcel of inanimate Matter, by what Name ſoever dignified, than ſuch as Reſult from the particular Figures and Modifications of its conſtituent Parts: Whatſoever Honours and Names therefore have been aſcribed to this wonderful *Bark*, I hope it will not be accounted irreligious, to level it with others of the ſame Claſs and to affirm it to be endowed with no other Virtues, than reſult from the peculiar Modifications of thoſe eſſential Properties of Matter, which it has in common with all other Bodies of much viler Account.

To know then how this wonderful *Drug* diſplays its Virtues, we muſt take it to Pieces, and ſubject it to the ſame Ways of Examination as other Bodies; which is to enquire into the Bulks, Shapes and Solidities of its conſtituent Particles; and herein when we come to conſider its Contexture, as it appears to the naked Eye; its Roughneſs upon the Pallate, and the Difficulty of reducing it into a fine Powder by pounding, or deſtroying the natural Diſpoſitions of its conſtituent Parts by Infuſion or Digeſtion, and drawing from it by ſuch Means, any Tincture endowed with the ſame healing Virtues, as it is known to have when it is given in Subſtance; when all theſe I ſay come to be conſidered, it will readily appear, that it is made up of Parts very irregular, pointed, and Solid. By the Texture of the Bark, and the Diſpoſitions of its component Parts, which are diſcernable to the naked Eye upon breaking, it is plain that they are like little Cylinders or Needles ſhooting one over another, not much unlike ſeveral Salts upon their Chryſtallization, and when it is broke tranſverſely, any one may ſee their Points; which Shape alſo they may be ſeen to continue upon pounding, as far as the Eye is able to follow them. Their Solidity alſo is manifeſt from the Difficulty of reducing it into an impalpable Powder, but moſt of all by the little Alterations it undergoes, even by long Infuſion; for if it be then examined, after the Liquor is ſtrained, and it is dried, it will not be found much to have waſted in Weight, and but very little changed either in Colour or Taſte; it loſes indeed moſt of its Bitterneſs, but its Roughneſs remains; and upon Tryal it hath generally been found, that if it be then powdered and given in Subſtance, it will make a Cure as effectually as when given before ſuch Infuſion. The Solidity likewiſe, as alſo the Angular Figures of the component Parts of the *Bark*, is further manifeſt from its Aſtringency and Roughneſs in the Mouth, which any one who pleaſes to taſt it, will ſoon be convinced of.

But beſides theſe groſſer Parts, which the *Bark* is plainly compounded of, and which are (not without great Difficulty) broke very ſmall; it hath alſo in its Compoſition, ſome parts very ſmall and eaſily diſſipable, as appears by that which ſo eaſily riſes and flies off upon breaking it, as likewiſe by that penetrating *Bitterneſs* which is diſcernable in it by the Pallate.

That this is the true Contexture and Modifications of the component parts of this famous *Drug*, every one's Senſes are ſo able to inform him, that I think it can hardly be called in Queſtion; thoſe who would be farther ſatisfy'd, may turn to Dr. *Cole*'s Book *de Febribus intermittentibus.* cap 10. and to Dr. *Jones* on the ſame Subject *part.* 3. *cap.* 2. The laſt of which ſeems to have omitted nothing that might give any Light into this Matter, and indeed the whole Book is ſo full, rational and convincing, that this Subject ſeems wholly to be exhauſted; ſo far eſpecially as relates to Curing with the *Bark*.

In this View then it will not be at all difficult, to conceive how this *Drug* is of ſervice in anſwering both the Intentions of curing an *Ague*. Both by the ſmalneſs, ſolidity and Irregularities of its Parts, as ſoon as it mixes with the Blood, it cannot but give it a greater *Momentum*, encreaſe the Impulſes of its parts one againſt another, upon which Account a great many Coheſions will be broke, and other parts prevented from running into ſuch cloſe Contacts, as occaſion thoſe Coheſions, that is, the Viſcidity of the Blood will thereby be broke, and preſerved Fluid. The other Intention will be anſwered, by its corrugating the Nerves, and rendring the Contractions of the Veſſels more brisk, by which, Digeſtion will afterwards be better performed, and an Encreaſe of the Bloods Quantity, and conſequently of its Viſcidity thereby prevented. But in the latter Intention it ſeems to have the moſt Efficacy, becauſe it never fails to cure for ſome time, and ſo ſuddenly that it cannot be expected in ſo ſhort a Time, it ſhould have done it by the firſt.

And that the *Bark* is very Efficacious this way, *viz*; in drawing up the Fibres, and giving a greater Firmneſs to the Solids of the whole Body, is farther confirmed by its Effects upon ſuch who are ſubject to ſweat too much, where it as effectually cures as in an *Ague*, For this we are certain is done by ſtraitning the Fibres, hardning the Muſcles, and thereby enabling them to break and digeſt the Fluids far enough, to throw off that overcharge by inſenſible Tranſpiration, which before went off by Sweat.

And this Effect of drawing up the Solids, is brought about by the *Bark*, by its aſtringing and corrugating the Fibres, whereſoever it touches them throughout its whole Paſſage from its firſt entrance into the Stomach, to its Diſcharge out of the Body. That it acts as a *Stimulus* upon the Stomach and Guts, cannot be queſtioned when it is conſidered how often it irritates them to a Diſcharge of their Contents, and goes off as a *Cathartick*; but then very much loſing its Efficacy in putting by the Diſtemper. Its curing alſo or putting by a Fit by one large Doſe only, taken about an Hour before its time of coming, is a further Confirmation that it does it only by drawing up the Solids into a ſtraiter Tone, and preventing the Eruption of the obſtructed morbid Matter into Action.

If then it has ſo much Efficacy as an aſtringent in the Stomach and Guts, where the Fibres are ſo much guarded by their natural *Mucus*, which is always in great Plenty lodged upon them, with how much more Force muſt it needs act in the ſame manner upon the Solids when it is brought into much ſmaller Veſſels, both as it paſſes into the Blood, and when it comes there; for where a Particle in the Stomach chances to ſtrike againſt a Fibre once, when it comes into one of the capillary Veſſels, is more likely to do it a thouſand Times, therefore as the Blood comes to be pretty well charged with theſe Particles, the Fibres in all Parts are corrugated and ſhortned at once, whereby the whole Body acquires ſuch a Strength and Firmneſs, as will not only not admit of the Attacks of the morbid Matter, but ſuch as frequently likewiſe occaſions its Attrition and Expulſion quite out of the Body.

And here I cannot but juſt take Notice, how little need there is with Dr. *Cole*, who has drawn out his Conjectures upon theſe Inquiries into an incomprehenſible Fineneſs, to look for any other Scene of Action, (as he calls it) of the *Bark* than what I have here aſſigned; for to carry it through that intricate Secretion which is made in the Brain into the Nerves, which he argues to be tubular, and pleaſantly enough calls the *America* of the *Microcoſm*, not only to me ſeems needleſs in order to account for this Diſtemper, and the *Bark*'s curing it; but alſo goes too far from thoſe Evidences, which in Phyſical Searches ought always to be kept in View.

But the greateſt Difficulty that yet remains, is this, how it happens that this Diſtemper ſo frequently returns, after a Cure by the *Bark*? to which I anſwer, becauſe the *Bark* has no Efficacy but in Subſtance, ſo that as ſoon as it is all thrown off, the Body returns to the ſame State as before. And this Opinion is fully confirmed by common Practice, whereby we are certain that no clear or clarified Tincture can be made of it which will Cure, let it be made with never ſo much Art and Contrivance.

When therefore an *Ague* happens upon, or brings a weak thin *Craſis* of the Blood, the Cure made by the *Bark* laſts no longer than while it remains in the Blood, and that *Tenſity* which it gave to the Fibres continues. In ſuch Conſtitutions therefore, or when a Perſon is brought into ſuch an ill Habit by a long Continuance of this Diſtemper, there is another Intenſion alſo to be anſwered, and that is, to reſtore the natural *Craſis* of the Blood, and if this be neglected a laſting Cure will never be made. Is it not then very much to be wondred at? that, let this Diſtemper return never ſo often upon the *Bark*, yet the ſame ſhall be repeated upon every Return, and ſometimes till the Patient is ſent out of the World; whereas when it once comes again after its Uſe, nothing is more certain than that ſomething elſe remains to be done, which cannot be expected from the Virtues of this celebrated Remedy.

After all then, if ſomething elſe can be found out, which will anſwer the two former Intentions, and the latter too at the ſame time; I hope it may be allowed to take Place, even of the *Bark* it ſelf: And that there are ſuch Things I am fully convinced by my own Experience, for in abundance of Inſtances of this Diſtemper, and ſome of them above two Years ſtanding, (unleſs now and then a few Intervals for about a Fortnight upon taking the *Bark*) I have not failed once of making a confirmed Cure, and without the Aſſiſtance of one Grain of this Remedy.

But after talking thus big, I think my ſelf obliged to give an Account, by what means I pretend to ſuch mighty Matters: In the firſt Place I renounce all Pretentions to any *Specificks*, or *Medicinal Secrets* herein, being fully aſſured that the Art in curing any Diſtemper, conſiſts not in barely finding out the Virtues of Medicines, but in underſtanding the true Oeconomy of a human Body, and knowing how to apply them.

Where the *Craſis* and Temperature of the Blood remains good, (although an Obſtruction of the perſpirable Matter hath encreaſed its Quantity, and occaſioned an adventitious Viſcidity, or whether this Cauſe firſt ariſes from a Relaxation of the Solids and an Ague enſues, the *Bark* in Time is ſufficient; but if after about Fourteen Days it returns, it's a certain Sign alſo the Blood wants mending, and in ſuch Caſes after Vomiting, the common *Bitters* with *Aromaticks*, *Aſtringents*,

Aſtringents, *Steel*, or any warm generous Medicines, according to the Strength, Age, and Conſtitution of the Patient, never yet deceived me, although herein ſometimes I have found neceſſary the aſſiſtance of a conformable way of living, as brisk Exerciſe as much as can be endured without Sweating, and a Diet that is warm, ſpirituous, eaſy of Digeſtion, and what *Sanctorius* calls eaſily perſpirable, in which Fleſh is better than Fiſh; roaſted better than boiled; every thing high ſeaſoned, excepting with Salt; ſtrong ſtale Beer, old dry Wines in moderate Quantities, are preferable to ſmall and new Liquors. But all theſe Things are to be managed with Care and particular Directions, and in ſuch a manner as always to fall in with the Intentions of Cure; And I cannot but ſometimes entertain a Belief, that this Diſtemper, by a Perſon thoroughly appriſed of its Nature and Cauſes, might be cured by as different Ways and Means, as any one Diſtemper beſides, notwithſtanding an unaccountable *Bigotry* to the *Bark* has drawn Perſons into the Uſe of that only. But as to *Chalybiated Bitters*, eſpecially after the Fit is once put by thus much I have to ſay farther of my own Knowledge, that by them I have ſeen Perſons, not only thoroughly recovered from their *Agues*, but alſo from the Borders of the *Jaundies*, *Dropſies* and other Stubborn and often fatal Diſtempers, which their long Continuance are very apt to bring People into. How ſuch Means as theſe not only take away an aguiſh *Diatheſis* but reſtore alſo a Perſon to a ſound Health, needs no Explanation, to ſuch who are converſant in theſe Enquiries.

But before I quite cloſe this Digreſſion, it will be worth the while to Enquire into the Reaſon why an Encreaſe of any of the ſenſible Evacuations, or Phlebotomy ſoon after a Cure is ſo apt to Return the Diſtemper; and this the *Sanctorian* Doctrine admirably accounts for. For in ſeveral of theſe Aphoriſms, it hath already been proved, that an Encreaſe of one Evacuation, will always be a Means to leſſen the reſt, when therefore a greater Quantity than what is natural is drawn off by Stool, Urine, Sweat, or the Quantity of Blood is leſſened by Phlebotomy, a great deal of that which ſhould go off by inſenſible Perſpiration cannot but be diverted, the cutaneous Paſſages leſſened in their Capacities, the Quantity of Blood in Time encreaſed, and conſequently its Viſcidity, and a Return of the Diſtemper muſt follow; and upon this Account only, it is ſometimes that an Ague is ſo difficult to be perfectly cured, becauſe where it hath continued long, Nature has been ſo much uſed to an Encreaſe of the other Evacuations, and throwing off its Overcharges by the Criſis of every Paroxyſm, that the cutaneous Paſſages are cloſed too much, to be brought eaſily to their natural Diſcharges, whereupon as ſoon as the Efficacy of a Medicine, which for ſome Time has brought all things to Rights is over, or whenſoever by any external Cauſe there happens an Encreaſe of the Quantity of the Fluids, the Overcharge will run off by the ſenſible Evacuations, and leſſen the Quantity which ought to be inſenſibly perſpired, as before.

A P H. XXXVII.

An Hours Sleep at Noon after Meal, ſometimes occaſions the Body inſenſibly to perſpire a Pound, and ſometimes half a Pound: a Pound when any of the perſpirable Matter of the former Day hath been retained; when not, but half a Pound.

EXPLANATION.

Dr. *Liſter* commends this as a moſt excellent Remedy in weak People for imperfect Digeſtion, and there is a great deal of Reaſon why it ſhould be of Service, becauſe ſuch an additional Help, every Day may compenſate for the Deficiences of the laſt Nights Perſpiration; but they muſt not be too free with this Practice, who are inclined to grow fat: If likewiſe the Obſtruction of the perſpirable Matter the Night before has been conſiderable, there may be a great deal of Danger; for,

A P H. XXXVIII.

If any of the former Days Perſpiration is retained, and not altogether carried off the next Day by Sleep after Dinner, immediately upon waking there is perceived a great Weight of the Head, attended with Pain.

EXPLANATION.

Becauſe by ſuch Sleep, if the obſtructed Perſpirable Matter does not get clear off, it will hinder likewiſe the Exhalation of that Supply which is made by the laſt Meal, and render the Obſtruction more obſtinate, by admitting ſtill more into the excretory Paſſages before there is Room made for it to get thorough; which cannot but produce all theſe Symptoms which uſually appear upon the firſt Attack of a Feaver; as Pain and Heavineſs of the Head *&c.* whereas was that Sleep omitted until the following Night, by that time with a little gentle Exerciſe might the obſtructed Matter be ſo much farther diſlodged and broke, as to be fitted to get off through its proper Paſſages.

APH. XXXIX.

If four Hours after falling aſleep the Food corrupts; immediately afterwards theſe two Inconveniences ariſe, Watchfulneſs and a Hindrance of Perſpiration.

EXPLANATION.

Corruption of Food hath been already explained to be ſuch a fermentative Motion of its Parts, as diſpoſes it to Putrefaction; which we find it does frequently fall into, and thereby produce violent *Diarrhea*'s; and of Courſe alſo other bad Symptoms, but more eſpecially does it diſorder the Buſineſs of Perſpiration, becauſe it cuts off the Supply, during which time, the cutaneous Pores are apt to ſubſide and loſe their proper Capacities, whereby that Diſcharge may afterwards be again reſtored to its natural State.

APH. XL.

Nothing more frequently interrupts Sleep, than a Putrefaction of the Food: ſuch is the Sympathy between the Stomach and the Brain.

EXPLA-

EXPLANATION.

By the Sympathy of any one part with another, is to be underſtood only that Communication of Nerves, by which when one is affected, the other is ſo alſo; thus when any thing affects the Coats of the Stomach with any troubleſome Vellications, the Brain becomes diſturbed thereby, becauſe the Nervous Threads are ſo numerouſly diſpenſed from one to another, that when drawn at one End, that Motion will be always communicated to the other; and by this Means the Solids of the whole Body, according to the different Contextures and Communications of their conſtituent Fibres, in the like manner ſympathize with one another; and all of them ſo much with the Brain, that any conſiderable Uneaſineſs in any other part, although the moſt remote, cannot but affect it and hinder Sleep, as much as when the Diſturbance is at the Stomach only.

APH. XLI.

Sleep in Winter time, is more ſerviceable than in Summer; not becauſe the Bowels are warmer, or Sleep longer; but becauſe early in the Morning the Body is actually warmer, and as ſuch perſpires moſt, but in Summer time it is really colder.

EXPLANATION.

See *Explanation* to *Aphoriſm* XXVII. *Sect.* II.

APH. XLII.

Briskneſs and Activity after Sleep, denote that the Body hath that Night perſpired near three Pound, for the moſt Part.

EXPLANATION.

This is the Quantity which *Sanctorius* generally computes to go off by Perſpiration in an healthful Perſon in the Space of one Night, when therefore a Perſon finds himſelf briſk and lightſome, it muſt needs be a good Sign that no part of the perſpirable Matter hath that Night been retained, but that the whole Quantity is exhaled.

APH. XLIII.

When the Head ſeems light after Sleep at Noon, it is a Sign that no part of the former Days Perſpiration hath been obſtructed.

EXPLANATION.

For the ſame Reaſons as in the foregoing.

APH. XLIV.

Sleep univerſally moiſtens both the inward and outward Parts, becauſe it attenuates the perſpirable Matter, and diſpenſes it when ſo broke thorough all the Members.

EXPLANATION.

What Alterations are effected in the Body by Sleep may be collected from what has gone before in ſeveral places; and it more particularly appearing that thereby all the Solids are in a more relaxed State than when awake, its Effects herein mentioned muſt neceſſarily follow, becauſe ſuch Relaxation admits of an Enlargement of all the Secretory Paſſages, by which ſuch Juices as are fitted to be ſeparated by them, will paſs them at that time more plentifully, and will thereby be more freely diſperſed through all the parts of the Body. The perſpirable Matter alſo then going off from all the Parts internally, makes a kind of Dew, and gives them that ſuitable Moiſture, which fits them the next Day the better to perform their reſpective Offices: For as too great a Moiſture injures the Springs of the Fibres by rendring them too flaccid, ſo too little will keep them dry and criſpy, and therefore a convenient Quantity of Moiſture is not only ſerviceable but neceſſary.

APH.

APH. XLV.

When a Perſon is awake, a greater Quantity of Blood not yet prepared for Perſpiration, is carried from the Center to the Circumference, than when aſleep.

EXPLANATION.

The Motion of the Blood, is certainly greater in the Day-time than when aſleep; becauſe the Heart then, as all the Solids, is more contracted, and conſequently it's Syſtole is ſtronger, and propells the Blood through the Arteries with greater Force; all the Parts of the Blood therefore are then more confuſedly carried along, and a groſſer Matter thrown upon the ſmaller Veſſels in the Extremities than in the Night, when by the Remiſſion of its Velocity, the finer Parts only get thorough the ſmalleſt Paſſages.

APH. XLVI.

By Sleep the Humours are concentrated, and the exterior Heat is united with the innate, Thirſt is removed, unleſs Choler predominates; the Blood is converted into it's ſecond Juices, and the Body is rendered lighter.

EXPLANATION.

This *Aphoriſm* is expreſſed with a great deal of Obſcurity; by *Concentration of Humours*, and *uniting of the exterior with the interior Heat*, I cannot find out what is mean't, but it may perhaps be my own Fault, that I am not yet acquainted with all the Bleſſings that Sleep procures. The Thirſt is abated by that univerſal Moiſture, which has already been proved to ariſe and be univerſally diſtributed in the time of Sleep; to this Purpoſe alſo may be very conducive that Enlargement of the Secretions, which is made at this Time; for by this means likewiſe, thoſe Salts which before hung about the Secretory Ducts, and by their Irritations excited the Senſe of Thirſt, are waſhed away by the circulating Juices, and more plentifully thrown off at their proper Outlets, the Kidneys. Although in bilious Conſtitutions indeed where the Blood abounds with great Quantities of ſaline ſtimulating Particles, the Moiſture raiſed may not be ſufficient for this purpoſe. By the ſecond Moiſtures (*ſecundas Humiditates*) he ſeems to mean the perſpirable Matter, and to think it the moſt conſiderable Secretion that is made from the Blood; but much the greateſt Part of that which perſpires immediately from the Blood paſſes into other Juices, and with them performs a great many Circulations, and undergoes ſeveral Changes before it is fitted to go off that Way. How the Body becomes lighter by Sleep, abundantly appears from ſeveral of the foregoing.

APH. XLVII.

By Sleep the Animal, by watching the Vital and Natural Spirits decay.

APH. XLVIII.

By watching, the animal Spirits are ſtrengthned, but the vital and natural weakned.

APH. XLIX.

By Sleep, the inward Parts grow warmer and lighter; by watching the outer Parts.

EXPLANATION.

I muſt confeſs my ſelf not Maſter of enough Penetration, to enter into the two former of theſe *Aphoriſms*, notwithſtanding I am ſenſible that much hath been ſaid by a great many others as well as *Sanctorius*, concerning this Diſtinction of the Spirits into *animal*, *vital* and *natural*; yet ſuch is my Unhappineſs, that I never yet could underſtand half the fine Things that have been advanced hereupon: Indeed I find my ſelf able to form ſome *Idea* of a very thin volatile Matter ariſing from a due Motion and Preparation of the Blood, and diſpenſed throughout the Solids of the whole Body, in order for their Invigoration and the Maintenance of their Springs; and if this be the natural or vital Spirit here ſpoken off, I think it very reconcileable with the *Aphoriſm*; for it hath already been proved that this Juice, Fluid, or Spirit, whichſoever it is called, is ſupplied chiefly in time of Sleep; and that the Actions of the Muſcles when awake, make a great Waſte of it, and bring on a neceſſity of frequent Recruits. But what that is which is dignified peculiarly with the Name of *animal Spirits*, in Diſtinction from the other, I cannot gueſs, unleſs by it is meant the Mind or Soul, by which a Perſon is ſaid to think, reaſon and reflect; but then I can no more conceive how this is properly ſaid to be weakned or ſtrengthned by Sleep or watching, than imagine how the *Ballance* comes to make any Diſcovery about it. It is indeed within every ones Experience, that this Power or Faculty is not always alike vivid and clear, and that it is much influenc'd by what paſſes in the Body; but then contrary to the *Aph.* it is moſt commonly able to exert it ſelf with moſt Strength after a ſound Sleep; and upon long watching, again grows dull and confuſed.

The Contents of the XLIX. are true with this Reſtriction, that the inward Parts are warmer and lighter by Sleep, comparatively more than the outer, and the outer more by watching than the inward: For in Sleep the Muſcles of the Limbs lye inactive, and the Pulſation of the Heart, and the Motions of all the Parts ſerving to carry on the Circulation, and the Performance of all the vital Functions, then continuing as well as when awake; the inner Parts during Sleep, which are concerned in theſe Motions, cannot but be comparatively warmer, and lighter too by their continual Diſcharge of the perſpirable Matter, than the outer Parts which are at reſt. But for the ſame Reaſon when awake, the extream Parts will have this Advantage from their greater Exerciſe.

APH. L.

By too much Sleep, both the inward and outer Parts grow cold, the Humours are obſtructed, and rendered Imperſpirable, and the whole Body heavier.

EXPLANATION.

By the very ſame Means by which moderate Sleep does Service, too much of it proves injurious; becauſe too much Relaxation overcharges the Nerves with too thick and too large a Quantity of Juices, which inſtead of making them fitter for Motion, clogs them, and renders them leſs capable of recovering their Springs afterwards; and when once the Solids fail, the Fluids of Courſe ſlacken in their Motions, by which the natural Warmth decays, and the Fleſh grows cooler, and themſelves alſo becoming more Seizy, they ſuffer the leſs to paſs off by inſenſible Tranſpiration, and conſequently make Bodies heavier.

APH. LI.

Bilious Conſtitutions are very much hurt by too much Sleep, not becauſe the Recrements of the third Concoction do not go off by Perſpiration; but becauſe they are very acrimonious, and thereby affect the Head and Bowels.

EXPLANATION.

Every thing which by its Acrimony ſtimulates the Nerves, muſt be attended with a great many Conſequences prejudicial to the Conſtitution: And the Choler is known to be a hot ſtimulating Fluid, wherefore they who are overcharged with it, ſuffer moſt by much Sleep, becauſe at that time it is derived with the other Juices to the Nerves, and in ſuch Quantities, as to produce the Effects herein mentioned: And undoubtedly it is ſomething like This, which pricks and irritates the Nerves, and occaſions thoſe Starts ſome People are ſubject to when aſleep.

APH. LII.

In thoſe who ſleep uncovered, Perſpiration is more obſtructed, than in ſuch who go naked when awake; both becauſe in Sleep the Body is without

Motion, and becauſe the Heat of the external Parts retires inward.

EXPLANATION.

The former Reaſon, that the want of Motion occaſions the greateſt Injuries, from obſtructed Perſpiration in a ſleeping Perſon, is very manifeſt, for the Actions and Attritions of the Muſcles in the Perſon awake being greater, may in time digeſt and break the obſtructed Matter ſmall enough to paſs it off; whereas a ſmall Matter retained in Sleep, for want of ſuch Action will be continually encreaſing until it occaſions very great Diſorders. But for the Heats retiring inwards, I am obliged ſtill to own my Ignorance.

APH. LIII.

Unuſual Watchings, render the Body the firſt Day heavier and weaker; heavier becauſe after the Evacuation of the perſpirable Matter, there will be left a Crude Juice heavy both in it ſelf, and by accident; weaker becauſe where there are Crudities, there will be no Aſſimulation, and conſequently a Decay of Spirits.

EXPLANATION.

Whoever conſiders the Neceſſities and Advantages of Sleep above recited, will ſoon perceive how too much watching will defraud the Solids of that due Supply of Juices or Spirits, as is abſolutely neceſſary to enable them rightly to perform their ſeveral Offices; and therefore of Conſequence muſt the Body grow heavier, by want of a due Digeſtion, and an obſtructed Perſpiration; and the Limbs alſo weaker for want of Strength and Spirits: (which he means by the Juices being accidentally heavier, that is, beſides their own abſolute Weight, they will alſo be heavy with Relation to the Perception or Senſe a Perſon has of them, which always is in proportion to his Strength) For the ſame Reaſons alſo, a due Aſſimulation of nutritious Matter with the Subſtance of the Body will be defective.

APH. LIV.

In ſeven Hours Sleep after long watching, the Quantity that perſpires, will be encreaſed about a Pound.

EXPLANATION.

Perſpiration is then encreaſed, becauſe by the long State of Contraction of the Solids, and the continual Attritions whilſt awake ; there will be a greater Quantity of the perſpirable Matter ready to paſs off, than uſual, and therefore as ſoon as the Body is relaxed by Sleep, and the Diameters of the excretory Paſſages are lengthned, it exhales much more plentifully than at other times, inſomuch as according to *Sanctorius*'s *Ballance* to exceed by about one Pound in ſeven Hours.

APH. LV.

Continued Watchings renders a Body lighter, not by a greater Perſpiration, or any encreaſe of the ſenſible Evacuations, but becauſe the Recruit is not proportionable to the Waſt that is made at ſuch time, of the Subſtance of the Body.

EXPLANATION.

The continued Attritions of the Parts which are much greater, as was ſaid before, when awake than in Sleep, will wear off more of the Subſtance of the Solids, and leſſen their Bulk, than can be recruited without the help of frequent Relaxations by Sleep.

APH. LVI.

The Body in a Morning is lighteſt, and perceives it ſelf ſo : It is lighter than at any other time, becauſe about three Pound of perſpirable Matter is gone off the preceding Night ; and it perceives it ſelf ſo, both becauſe it is really lighter, and becauſe by a good Digeſtion of eaſily perſpirable Meats, the Strength is renewed.

EXPLANATION.

The Diſtinction before taken Notice of between *abſolute* and *relative* Weight, is here to be regarded, and then it will need but little Explanation; for we know already both how the Body becomes to be abſolutely lighteſt in a Morning, by the waſt of ſome Pounds in Perſpiration; and how it perceives it ſelf ſo by an Encreaſe of Strength, from a freſh Recruit of Spirits, diſpenſed to the Solids in the preceeding Nights Sleep.

APH. LVII.

The Body by unuſual watching, may be rendered heavier, if the Food with which it is nouriſhed, be difficult to perſpire.

APH. LVIII.

So very large are the Steams which ariſe from Perſons in Sleep, that not only the diſtempered communicate bad Qualities to thoſe who are well, but even the healthful in lying together affect one another.

EXPLANATION.

How far, and what Diſtempers are to be propagated by thoſe Steams, would not only be a Buſineſs of Length, but Difficulty, to enter into here, eſpecially to attempt a particular *Rationale* of the *Modus propagandi*: Although I believe very few are communicated this Way, but ſuch as are only cutaneous.

APH. LIX.

From Eating comes Sleep, from Sleep Digeſtion, and from Digeſtion a good Perſpiration.

EXPLANATION.

All theſe have frequently been explained above.

APH. LX.

Marmalet, not immediately after Supper, but after the firſt Sleep, provokes Sleep, ſo that it is not drank after.

EXPLANATION.

I cannot conceive how drinking after it, ſhould hinder its procuring Sleep, unleſs by deluting the Flavour, and rendering it leſs grateful to the Stomach. But how it provokes Sleep at all I cannot eaſily imagine, any more at leaſt than any other thing does, which proves ſerviceable to the Conſtitution, and preſerves a good State of Health, which muſt neceſſarily be ſupported by convenient Returns of Sleep, which is confirmed by the following

APH. LXI.

Marmalet with Cinnamon, ſtrengthens the Stomach, by which Sleep is promoted.

APH. LXII.

A moderate Quantity of Wine and Garlick excite Sleep and Perſpiration; but if they are uſed too plentifully, they hinder both: for they turn Perſpiration into Sweat.

EXPLANATION.

The Difference between Perſpiration and Sweat, has been before taken Notice of in the firſt *Sect.* under *Aph.* XXI. and how a moderate Meal excites the former, and an Overcharge hinders it, need not be again repeated. Spirituous Liquors taken in too large Quantities, and any ſuch things as plentifully

fully raiſe themſelves upon Digeſtion into Vapour, may frequently go off in ſuch large Quantities by the cuticular Diſcharges, as to force along with them a great deal that cannot well be ſpared, by which Means the Fibres are afterwards left weaker, and not ſo able as before to carry on the Buſineſs of Digeſtion and Perſpiration.

APH. LXIII.

He who concocts and digeſts well, will be long liv'd: Concoction is perform'd during Reſt and Sleep; and Digeſtion by Watching and Exerciſe.

EXPLANATION.

In this *Sanctorius* diſtinguiſhes between Concoction and Digeſtion, by the former he ſeems to underſtand only that Alteration which is made in the Fluids, by the mutual Actions and Impulſes of their Conſtituent parts upon one another; but by the latter, that which is made upon them, by the Actions and Attritions of the Parts which contains them; and with this Diſtinction the *Aphoriſm* holds good: For it is certain that during Sleep the Fluids are not ſo ſwiftly agitated by the circulating Veſſels, and therefore have more Liberty to obey the Diſpoſitions of their conſtituent Parts, and fall into an inteſtine or fermentative Motion, ſo far as thereby to become altered in their Coheſions and Degrees of Fluidity, and put on ſuch new Forms and Diſpoſitions, as are more ſuitable for thoſe Purpoſes they are further deſigned for; but while waking their circulatory Motions are too rapid to allow of their obeying ſuch Diſpoſitions, and their Generation of new Coheſions; yet notwithſtanding this, they are at ſuch times broke the finer, by the continual Contractions and Attritions of the Veſſels, and thereby rendered more fit when Sleep comes, to fall into them, and form Fluids of different kinds and uſes, according as the ſeveral Exigencies of the Oeconomy require. A further Account may be had of this Matter from *Guillielmini*'s *Prælectio, de Circulatione & Naturâ Sanguinis.* In this Senſe is to be underſtood the following

A P H. LXIV.

If a Wearineſs remaining after Sleep is removed by Exerciſe, the Fault is owing to Digeſtion, and not to Concoction.

EXPLANATION.

Becauſe that Wearineſs muſt have been occaſioned, by an Obſtruction of ſome indigeſted perſpirable Matter; which Exerciſe the next Day may break ſmall enough to paſs off. This View of the Matter likewiſe furniſhes us with ſome good Rules how to manage our ſelves after Eating, eſpecially in weak Conſtitutions; for ſuch ought not to ſleep after Meals but a very ſhort time, becauſe otherwiſe the Food would paſs the *Lacteals* and get into the Blood without being broke enough firſt in the Stomach, to be afterwards managed by the much weaker Attritions of the Veſſels which circulate it; whereas a little moderate Action after Eating, might perform a thorough Digeſtion of it, before it gets ſo far.

A P H. LXV.

When we riſe with our wonted Weight, but with greater Wearineſs, unleſs that Wearineſs be removed with uſual Exerciſe, it denotes a Collection of Crudities, a Corruption of the Food, or too great a Uſe of Venery.

EXPLANATION.

The two former, *viz.* Crudities and a corrupted Food, do the ſame by an additional Weight, both of them hindring Perſpiration, in the manner already explained, as the latter does, by weakning the Strength and Vigour of the Solids; for it hath before been made appear, that a Diminution of Strength is the ſame as to the Senſe of Perception that ariſes thereupon, as a real Encreaſe of the *abſolute* Weight of the Body.

APH. LXVI.

Immoderate Sleep after Dinner, injures all the Bowels, and obſtructs Perſpiration.

EXPLANATION.

Although a little Sleep at ſuch times upon a full Stomach, may be of Service by letting out what did not ſufficiently paſs off the Night before; yet if it be continued too long, there will ſuch a Quantity of undigeſted Matter follow, as will be too groſs to paſs; and conſequently plug up the Excretory Ducts, and thereby occaſion very conſiderable Diſorders.

APH. LXVII.

Wearineſs after Sleep, is removed by ſuch Means as promote Perſpiration; of which ſort are Abſtinence, Exerciſe, Watching and Anger.

EXPLANATION.

Becauſe ſuch Wearineſs always proceeds from an obſtructed Perſpiration; the firſt of theſe removes the Load, by cutting off its Supply, while the other by the Attritions of the Muſcles, in time break it ſmall enough to go off by the Skin.

APH. LXVIII.

To Sleep with the Body ſtretched is hurtful; but with the Limbs drawn up beneficial: for the cloſer Poſitions of the Bowels aſſiſts Concoction, whereas to be more diſtant hinders it.

EXPLANATION.

An extended Poſture cannot ſo much favour the Relaxation which is neceſſary in Sleep, as when the Limbs are drawn up; and beſides in the latter Poſition of the Parts of the Body, there is not ſo much of the Surface expoſed to the Air, and thereby is the Skin kept warmer, the Pores opener, and conſequently the more will by ſuch Means go off by Perſpiration.

APH. LXIX.

If cool Sweat happens to healthful People after Sleep, it is a Sign that they have perſpired too little; and that if it continues, in time they will have the Gout.

EXPLANATION.

By this alſo it ſeems, the Gout may in ſome Part owe its Riſe to a Perſpiration not well proportioned to the other Evacuations, and the Quantities taken in: and that this Defect of Perſpiration which makes Way for this Diſtemper, is owing to a weak Texture of the Skin, whereby although a Sufficient Quantity is prepared for Exhalation, yet in its Paſſage it is apt to lodge, and occaſion a Moiſture or Clamminеſs upon it.

APH. LXX.

By too much Sleep and hard drinking, the Strength is ſuffocated; by too much Watching and Exerciſe it is diſſolved; for all theſe leſſen Concoction, and a Diminution of that will alſo leſſen a due Perſpiration.

EXPLANATION.

This is but juſt the ſame, but only expreſſed in more obſcure Terms, as has often been ſaid before; and that whatſoever hinders Digeſtion, does alſo hinder Perſpiration, by this Time needs neither Proof nor Explanation.

Medicina Statica.

SECT. V.

Of EXERCISE *and* REST.

APHORISM I.

THE Body inſenſibly perſpires leſs in violent Exerciſe, than in a Morning Nine or Ten Hours after the Time he ſupped.

EXPLANATION.

Violent Exerciſe ſo much encreaſes that agitative or confuſed Motion of the Blood, taken Notice of under *Aph.* XXII. *Sect.* III. that none of the Secretions are then ſo regularly made as at other Times, and conſequently the Evacuations muſt be diſturbed, but more eſpecially that of inſenſible Perſpiration, becauſe the encreaſed Velocities of the Fluids, occaſioned by greater and Stronger Contractions of their Veſſels, will ſo blend the Matter which otherwiſe would inſenſibly go off, with what is not fit for thoſe Paſſages as to retain a great deal of it in the Body; inſomuch, that although by the ſame Cauſe, a great deal which is too groſs for Perſpiration is expelled, yet it is not in proportion to that Quantity retained as would have paſſed without ſuch Exerciſe, and therefore the Body muſt be injured by it.

APH. II.

That which paſſes the Skin by violent Exerciſe, is the perſpirable Matter and Sweat together; but as it is violent, it raiſes a great deal of undigeſted Juices; for it ſeldom happens that ſo much well digeſted perſpirable Matter is at once collected in the Body as is the Quantity by Violence expel'd.

EXPLANATION.

This ſeems to carry ſome Contradiction to the former, unleſs it be conſidered that the Time there fixed, for the Exceſs of the Quantity perſpired, above what is expelled by Exerciſe, is in a Morning after a perfect Digeſtion, at which Time it already abundantly appears, a vaſt deal more goes off that Way than any other; that Digeſtion moſt conducive in the Preparation of it going on much more regularly in Time of Sleep. See *Aph.* I. II. VI. of the foregoing *Section.*

APH. III.

Sweat is always from ſome violent Cauſe, and as ſuch, (as *Statick* Experiments demonſtrate) it hinders the inſenſible Exhalation of the digeſted perſpirable Matter.

EXPLANATION

For the Difference between the Matter of Sweat, and that of inſenſible Perſpiration. ſee *Aph.* XX. XXI. *Sect.*I.

APH. IV.

A Body perſpires much more plentifully during a quiet Reſt in Bed, than by frequent toſſing about.

EXPLA-

EXPLANATION.

See *Aph.* XC. *Sect.* I.

APH. V.

Chearful and Paſſionate Perſons, are leſs fatigued with long Travelling, than thoſe who are Fearful and Melancholy; becauſe the former perſpire much better than the latter.

EXPLANATION.

The Affections and Paſſions of the Mind, have a very great Power over the Animal Functions, as likewiſe are they themſelves very much to be altered by what paſſes in the Body: Concerning which we ſhall ſee further in the 7th *Section.*

APH. VI.

They who feed quickly after hard Exerciſe, injure themſelves thereby; becauſe to be weary and filled with Meat at the ſame time, will much hinder Perſpiration.

EXPLANATION.

It has been proved *Aph.* XLIV, XLV. *Sect.* I. that when a great Waſte is made by any violent Cauſe, the ſucceeding Meals will be very apt to paſs into the Veſſels not ſufficiently digeſted, and thereby obſtructing their capillary Branches, hinder Perſpiration, and alſo in *Aph.* XI. *Sect.* III. that a full Stomach has the ſame Effect; where therefore all theſe Cauſes concur, *viz*; a Laſſitude, Emptineſs, and a full Stomach, it is no wonder that the above-mentioned Inconveniency enſues.

APH. VII.

Exerciſe from the Seventh to the Twelfth Hour after Eating, waſts more inſenſibly in the Space of one Hour, than in three Hours at another Time.

EXPLANATION.

In ſo long a time after Eating, the Food will have got into the Arteries, upon whoſe due Contractions its further Digeſtion (in order to Perſpiration) altogether depends; whatſoever therefore aſſiſts thoſe Contractions, muſt likewiſe promote that Digeſtion, and encreaſe Perſpiration, and this due Exerciſe does with the greateſt Advantage; as will farther appear by ſeveral of the following. Here therefore the Caſe is vaſtly different from the foregoing, where the Food is taken into the Stomach, at a time when the Body has been exhauſted of its Spirits, and wearied by a preceeding Exerciſe.

APH. VIII.

That inſenſible Evacuation which is made by violent Exerciſe, hinders the future Supplies from amounting to the Quantity waſted; and ſo much that if it be long continued, the Body will be waſted ſo far, as to endanger a Conſumption.

EXPLANATION.

A Continuance of Exerciſe beyond the Strength of the Conſtitution, will not only waſte as much as is daily ſupplied, but alſo wear away a great deal of the Subſtance of the Body, and thereby ſink both its Strength and Bulk. We ſee therefore Exerciſe it ſelf, which under the two following *Aphoriſms*, will be found of vaſt Service, both for the procuring and preſerving a good Conſtitution, muſt be brought under proper Reſtrictions, and ought not any more than an efficacious Medicine to be uſed, but with the utmoſt Prudence and Caution; eſpecially until a Perſon has acquired ſuch a Strength and Firmneſs by it, (which a great many do,) as to bear without Injury almoſt all the Changes of Life.

APH. IX.

By Exerciſe Bodies are rendered lighter: for all the Parts eſpecially the Ligaments and Muſcles, are cleared of their Excrements by Motion: the perſpirable Matter is fitted for Exhalation, and the Spirits are rendered finer.

EXPLANATION.

There has been ſo much ſaid by a great many late Authors, of the Conſequences and Advantages of Exerciſe, and ſo far may be collected from what has herein been already ſaid, that it is almoſt needleſs to enter here into a very particular Account of the Effects of it; but as it is of ſuch mighty Importance and Efficacy, in changing a Conſtitution either for the better or worſe, I cannot eaſily deny my ſelf a ſhort Digreſſion, about the mechanical Conſtructure of a diſtractile Fibre, without ſome Knowledge of which, it is impoſſible to have any clear Notion of It. This indeed I hinted ſomething about under *Aph.* VIII. *Sect.* II. but then waved it in Conſideration of the Length I was aware it would carry me into; but finding upon ſecond Thoughts, this Section to turn ſo much thereupon, I beg the Reader's Excuſe for reſuming it here.

DIGRESSION III.

Concerning the Elaſticity of an Animal Fibre.

It has been already proved in the *Introduction*, that a human Body as it comes under the Notices of a Phyſician, is meerly a Machine, and that whoſoever goes any other Way to enquire into its Conſtitution, with Regard to its make, and the Regulation of its Diſorders, abuſes his Faculties, and leaves the only means to which his Maker has fitted him, of receiving any ſatisfactory Knowledge therein. Conſidering it therefore in this View, it very naturally comes to be divided into *Solids* and *Fluids*: The *Solids* are vaſcular, and have continually propelled thorough them ſome Liquor or other, neceſſary for the Purpoſes of the Machine. And theſe circulating Fluids are of different kinds, reſulting from the different Agitations and Velocities impreſſed upon them, by the Veſſels which circulate them. And in this View they have a neceſſary Dependance one upon another, that the Diſtraction and Power of Reſtitution in the Veſſels, is owing to their being duly moiſtened by ſome convenient Fluid, ſeparated and diſpenſed to them from the common Promptuary of all the animal Juices, the Blood; as likewiſe does that due Conſtitution of the Blood, which fits it for the Ceceſſion of ſome of its Parts for that Uſe, depend upon its certain Degrees of Fluidity, which always are as the Contractions of its circulating Veſſels: But yet even in this, the Solids have the principal Share, becauſe as that Power by which the Blood is preſerved in a due Conſtitution, is derived from its ſelf, that is of beſtowing upon the Solids a Juice neceſſary for the Preſervation of their Springs; yet that Conſtitution enabling it to afford ſuch a Power, being primarily derived from the Actions of the Solids upon it, the chief Spring or Riſe of Motion is in the Solids. To know therefore the moſt ready Ways of altering the Conſtitutions of the Fluids, is to find out the moſt convenient and effectual Means of influencing the Contractions of their Veſſels: But it is not likely this ſhould be done, without knowing firſt upon what Texture and Mechaniſm of Parts, their Powers of Contraction and Diſtraction do depend; whereby when they are once put into Motion, and filled with a convenient Fluid, they may maintain themſelves therein, until they are actually worn out, or their Textures by ſome external Cauſe deſtroyed.

But here it may be neceſſary to advertiſe the Reader, that the Mechaniſm here ſought after, is very different from that, whereby the Muſcles are continued to move any Part of the Body; for the latter is voluntary, and ſubſervient to the Operations and Dictates of the Mind; but the other is ſuch only, as regards the Motions of thoſe Parts, which are neceſſarily employed in carrying on the vital Offices, which are no Ways to be ſtopped or increaſed by Volition, but go on to move whether in Sleep or waking, in the ſame Manner, and by the ſame Contrivance of their conſtituent Parts, as when they were firſt put into Motion, until by ſome external Cauſe that peculiar Contexture is deſtroyed, and Death enſues. As the continual Dilatations and Contractions of the Heart and Arteries, by which the Blood is maintained in its circulatory Motion, can no Ways be either intended or remitted by the Power of Thought, ſo that peculiar Mechaniſm, by which they continue thoſe Motions when once begun, muſt be ſomething very different from that Diſpoſition of the Muſcles, which enables them to reſt or move, juſt as the thinking faculty pleaſes to direct them; the Motions of the former being the neceſſary Reſult of the peculiar Diſpoſitions of their component Parts, and the latter only ſuch as they fall into according to the Determinations of an external Agent. This laſt Enquiry, hath employed a great many Heads, and produced great Variety of Hypotheſes and Conjectures, but very little to the Satisfaction of ſuch who have been unprejudiced, and ſincere Searchers after Truth, until Application hath been made to thoſe proper and only Means, by which the Operations of all phyſical Agents are to be determined, which is upon mechanical Principles; and upon theſe, *Steno* and *Borelli* have had the Honour of making a very good Beginning, upon whoſe Foundations, Dr. *Bernoulli* of *Baſil*, (whoſe Account of *Muſcular Motion* printed in the *Leipſick* Tranſactions in 1694, hath been lately publiſhed in *London* by Dr. *Mead* under the Title of *Diſſertatio de Motu Muſculorum*,) and ſince him Dr. *James Keil* has improved much to the Satisfaction of thoſe who are not to be contented without ſuch Conviction and Demonſtration as the Nature of ſuch Things will admit of, and do require.

It is well known that any Membrane or Veſſel, may be ſeparated and divided into very ſmall Fibres or Threads, I mean when it is juſt taken out of the Body, and that theſe Threads may be drawn out a conſiderable Length beyond that which is natural to them without breaking, and that when ſuch external Force which ſo diſtracted them is removed, they will again reſtore themſelves to their natural Dimenſions. It is further alſo manifeſt, that this Property is preſerved in them by a convenient Moiſture, becauſe if one of theſe Threads be dryed, it immediately looſes it, ſo that upon the Applications of any Force to ſtretch it, it will break; as likewiſe will its lying ſoaked in Liquor too much, render it ſo Flaccid, as to deſtroy alſo its Power of Reſtitution when diſtended. Now what is exactly the conſtituent Texture, or what are the Shapes, and what is the Arrangement of thoſe Parts of which an animal Fibre is compoſed, I dare not be very poſitive in aſſerting, becauſe they are too fine to be perceiv'd by the Eye: But if ſuch a Diſpoſition of a determinate ſet of Particles can be ſound out, as will anſwer all the Appearances of one of theſe animal Threads, I hope it will not be looked upon too bold a Preſumption to conclude, that ſomething very like this alſo muſt be the Contexture of their Parts, ſo far at leaſt, as to allow the natural Conſequences of of the former to be a juſt Foundation for the other

The Obſervations and Experiments which have been made of late, but more particularly by Mr. *Boyle*, about the Contrivance and Properties of a *Syringe*, are what none can be unacquainted with, who are but indifferently converſant with Books, as likewiſe the Reaſons upon which that *Phenomenon*, of the Difficulty of drawing back the *Embolus*, when the Pipe is ſtopped, depends; and the Neceſſity of any Liquors following it, wherein the Pipe is immerſed: and this, with the Reaſons of it being well conſidered, it will be found, that all which is neceſſary for this Contrivance, is that the *Embolus* be ſo exactly adapted to the inner Surface of the *Barrel*, as to prevent any Air paſſing between them when it is drawn up; that it matters not what Figure the *Barrel* is of, ſo that the *Embolus* is well fitted to it. It eaſily therefore might be contrived to make a Caſe of *Syringes* wherein every *Barrel* may alſo ſerve as an *Embolus* to its exterior which immediately includes it. And with this View it is not at all difficult to imagine a continued Series of Particles ſo put together, that the inner may be moved and drawn upon one another, without ſuffering the Air immediately to enter into the Interſtices made by their Diſtraction, whereupon as ſoon as that Force which drew them is removed, they will for the very ſame Reaſon as the *Embolus* of a *Syringe* ruſh up again into their former Contacts, as may further be illuſtrated by Figure 8. ſuppoſe *A. B.* two Particles touching one another in *e, f.* and *C. D.* two other, covering on the oppoſite Sides their

Contacts. It is alſo to be ſuppoſed that on the other Sides they are covered by other Particles in the ſame Manner as by *C. D.* ſo that the Places of their Contacts are on all Sides encloſed from the Air, or the Inſinuation of any Fluid Body; wherefore if *A. B.* by an external Force, greater than that of their Coheſion, be drawn from each other as far as *G. I.* and *H. K.* in Fig 9. as ſoon as that Force is removed, they will again run into their former Contacts in *e. f.* Fig. 9. that is if they are not drawn ſo far, as to bring their tranſverſe Surfaces to coincide with *C.* and *D.* for then the Air, or circumambient Fluid will interpoſe, and prevent their Reunion. So that by this Contrivance, ſo much of *A.* and *B.* as is encloſed by other ſurrounding Particles, is as the *Embolus* of a *Syringe*, and the Particles ſurrounding them as its *Barrel*; and therefore when *A.* and *B.* are diſtracted from their Contacts in *e. f.* it will be with ſome Difficulty, and when the diſtractile Force is taken away, they will again run up into their former Contacts, juſt as the *Embolus* of a *Syringe*, and for the ſame Reaſon.

Since therefore an animal Fibre has this Property of Diſtraction and ſelf Reſtitution, it is very reaſonable to ſuppoſe it to be owing to the ſame Contrivance and Diſpoſition of its component Parts. I do not rigidly mean that they muſt needs be exactly of ſuch certain determinate Figures, but ſomething like this, whereby the Interſtices of the interior Orders, may be covered by the exterior in ſuch a manner, that when the Thread is diſtended, that is, when its conſtituent Parts are drawn from their tranſverſe Contacts, neither the Air nor any other external Fluid, can get between them, ſo as to hinder their Re-unions, as ſoon as ſuch force is withdrawn. That is if their Diſtraction, as was before ſaid, be not ſo far as to bring their tranverſe Surfaces to a Coincidence with one another; for then the circum ambient Fluid will interpoſe, that is, the Thread will be broke.

But beſides this peculiar Arraingment of a determinate Set of Particles to compoſe the main Subſtance of an animal Fibre, endowed with the Properties above-mentioned, it ſeems not at all an unreaſonable Conjecture, that into their Compoſition alſo enters a common *Capſula* or Covering, which aſſiſts in the wrapping up and holding togother thoſe *Faſciculi* or Series of Particles already deſcribed, not much unlike the *Perioſtium* of the Bones; the Contexture of which

Covering, reſembling that of a Net, cannot any ways hinder, either the tranſverſe or longitudinal Diſtractions of the other Parts.

If this can then be allowed to be the Conſtructure of an animal Fibre, (in which Opinion alſo I am not a little confirmed, from what hath been advanced by Dr. *Clopton Havers* in his *Oſteologia*, concerning that of the Bones and Carthalages, as well as from the above-mentioned [*Aph.* VIII. *Sect.* II.] Propoſitions of *Bellini*) it will next be neceſſary to conſider what Requiſites are needful to put them into that State which they are in, in a living Body, to ſhew how they are maintained in continual Motion, and what are the Conſequences of it.

I. And firſt it is neceſſary to take Notice that all the Fibres in a living Body, are in a State of Diſtention, that is they are drawn out into a greater Length than they would be in, if ſeparated from any Part, and taken out of the Body; which is eaſily demonſtrated by any *Solutio Continui*, eſpecially by any tranſverſe Deciſion of a Nerve or Artery (which are altogether Compoſitions of theſe Threads we are ſpeaking of) for immediately we ſee the divided Parts run up, and leave a great Diſtance between them, and the Fluids contained in them upon ſuch Contraction, to be ſqueezed out; and this alſo makes it appear, that their natural Diſtractions are owing to ſome Fluids being propelled into the Veſſels which they compoſe, with a Force greater than their Endeavours of Reſtitution, ſo far as to obtain a cloſe Contact of all their tranſverſe Surfaces, but yet leſſer than that which is neceſſary to diſtract them, ſo far as to bring them to a Coincidence, for then as was before proved, the Veſſels would break.

II. Next then this State of Diſtraction muſt neceſſarily leave *Vacuola* between all the tranſverſe Surfaces, as between G. *I.* and *H. K.* in Fig. 9. and may be repreſented by the ſeveral Series of Particles, delineated by Fig. 10. which *Vacuola* will continue as long, as the longitudinal Surfaces of its component parts continue ſo cloſe to one another, as to prevent the Inſinuation of any foreign Matter how ſubtile ſoever between them: For the ſame Reaſon therefore as when the *Embolus* of a Syringe is drawn, and the Pipe is ſtopped, there muſt needs be continually a *Niſus Reſtituendi*, or an Endeavour of Contraction: There is alſo further this Neceſſity of being maintained in ſuch a State of Diſtraction, becauſe if they were cloſely to touch one another in all Parts, they could not be put into and continue in thoſe undulatory Motions which they are always in, in a living Body, without being altered both in their Figures and Contextures.

III But it being very manifeſt, that all the animal Fibres are continued by the perpetual ſucceſſive Impulſe of the Fluids, in ſuch undulatory Motions, beſides this Neceſſity of their Diſtraction, they alſo muſt be continually moiſtned with ſome convenient Fluid, becauſe otherwiſe their continual Attritions againſt one another, would wear them out, and alſo render it difficult to move them. The Fluid likewiſe ſuited for this Purpoſe, muſt be very fine and ſubtile, becauſe otherwiſe it cannot be inſinuated into all the Interſtices of the Fibres, without ſo far ſeparating their Parts,as is inconſiſtent with that Contexture and Mechaniſm here laid down ; the Parts alſo of this Fluid muſt not only be very ſubtile, but ſoft and yielding, whereby the Motions of the Particles againſt one another, may the better be maintained, and alſo, as by a Cement, that they may be prevented in their receding from one another in their longitudinal Surfaces, ſo far as to admit of the Inſinuation of any foreign Matter between their tranſverſe Surfaces, in ſuch Quantities as to hinder their Reunion when Occaſion may require it.

With this View of the Contrivance and Mechaniſm of an animal Thread or Fibre, we come by a very eaſy and natural Explication of the ſeveral Terms or Expreſſions, frequently neceſſary to be made uſe of in many places of this Book, and which likewiſe are to be met with very common in ſome late Writings, ſuch as the *Diſtraction*, *Contraction*, *Vibration*, *Undulation*, *Tonick Motion*, *Concuſſion*, *Relaxation*, *Corrugation* and *Elaſticity* of the Solids, all which are but different Ways of expreſſing the various Modifications and Diſpoſitions of thoſe *Machinulæ*, of which all the Fibres are compoſed.

Thus far then being granted about the Contexture of a Fibre, and the Requiſites neceſſary for its Office,or the Continuance of its Motion in a living Body, it comes then to be conſidered how it may firſt be ſet in Motion, and by what Mechaniſm it afterwards is carried on. Let then a Fibre be deſcribed by *R. S.* Fig, 10, and in ſuch a State of Diſtraction as before mentioned. It is certain by Req. 2. that in all parts there is a continual *Niſus* or Endeavour of Contraction ; if therefore any external Force or Impulſe be made againſt it ſucceſſively from *R.* to *S.* on the Side *P*, thruſting it towards

Q.

Q. it is certain that when the Impulſe is againſt No. 1. the Thread will be diſtracted there more than in any other Part; that is, the tranſverſe Surfaces of its conſtituent Parts, will further be divided from one another, and thereby will there be a greater Endeavour of Reſtitution, or, which is the ſame, a ſtronger Contraction in that Part than any where elſe, which contractile Force, at laſt over powering the Impulſe made againſt it, will reſtore the Fibre again to its former Poſture in that Part, and ſuch Impulſe by Suppoſition, ſucceſſively going on from one End of the Thread to the other, all its conſtituent *Machinulæ*, 1, 2. 3. 4. will ſucceſſively be moved one after another.

But to make this Matter ſtill more plain, let a Portion of an Artery be repreſented by Fig. 11, through which the Blood is continually propell'd, in a Direction parallel to its Axis; nothing is more certain, than that if it were not for the Reſiſtances of the Sides of the Artery at *E. F.* the Blood ſetting out at *A. B.* would go on by the pricked Lines to *C. D.* and therefore it cannot but ſtrike againſt the Sides of the Artery at *E. F.* and diſtract them there more than in any other Place, whereby their Endeavours of Reſtitution will be greater there than any where elſe, and therefore when the Impulſe of the Blood has raiſed them to a certain Meaſure, (wherein their Endeavours of Reſtitution, will exceed the Force of the Impulſe that raiſed or diſtracted them) their contractile Powers will draw them up again into their former Dimenſions, and conſequently will the Blood be thruſt forward into the next Section of the Artery, and ſo on ſucceſſively from one to another through the whole Courſe of its Circulation: And upon this Mechanical Conſtructure of the Heart and Arteries is it that the Blood is carried thorough its whole Circuit, the Contraction of one Section of an Artery, being the true Cauſe of the Bloods Impulſe againſt, and raiſing the next. And this Alternate Diſtraction and Contraction of the Veſſels, thus naturally reſulting from, and depending upon, the peculiar Arraingment and Diſpoſitions of their component Parts, would for ever continue, were the Diſtractions conſtantly kept up by the due Impulſes of their circulating Fluids, and were all the Requiſites of that Mechaniſm by which they again contract themſelves always to remain the ſame, but as it is impoſſible but that the Solids muſt in time by their continual Attritions wear out, and ſeeing that all the Requiſites neceſſary for the carrying on ſuch Motions, are liable to be affected and diſturb'd, by almoſt an infinite Number of

Cauſes; nothing can give a greater light into the Means by which the animal Machine is to be preſerved, than the knowing both how its own neceſſary Motions naturally tend to wear it out, and how it may be injured or aſſiſted by external Cauſes; and this brings me to the laſt Thing propoſed, *viz*, the Conſequences of the continual Motions of the Solids; and of that peculiar Contexture, here aſſigned of the conſtituent Parts of an animal Fibre.

The moſt natural Conſequence of this Motion. will be the breaking ſtill ſmaller and ſmaller the component Parts of that Fluid, which by Req. 3. is diſpenſed to them to lubricate and facilitate their Motions; which Comminution will be continued, until it is rendered ſo fine, as to fly off at the Surface whenever it happens to get there, and thereby muſt there continually be made a Waſt of it, and meerly by ſuch Attritions of the Parts, as neceſſarily ariſe only from their due Diſcharge of the vital Functions; and that Matter which thus inſenſibly flies off, is the true *Materia inſenſibilis Perſpirationis* of *Sanctorius*, the Exhalation of which is ſo neceſſary and beneficial: What a Light this ſets the whole Doctrine of Perſpiration in, may, with what has been ſaid under ſeveral *Aphoriſms*, very eaſily appear to any one who is but indifferently acquainted with the animal Oeconomy, without entring into more particular Explanations about it.

But this Waſt muſt needs make it neceſſary that there be a continual Supply, and this is made from what is taken in by the Stomach; which after divers Digeſtions and Alterations, at laſt is mixed with the Blood, and there fitted for the Seceſſion of ſome Parts, through Glands conſtituted for that Purpoſe in the Brain, which from thence are diſpenſed through the whole nervous Syſtem in ſuch a Manner, as continually to keep up a due Supply of this animal Fluid. There is another way by which it is very probable that the Fibres take up freſh Supplies, and that a much nearer; for according to their natural Conſtructures, it is very likely that even in the Stomach and throughout the whole Paſſage of the Food into the Blood, thoſe Parts of what is taken in, which are ſoon ſeparated from the Reſt, and ready fitted for this Uſe, may when they chance to ſtrike againſt any of the Interſtices of a Fibre, be laid hold on, and by Degrees conveyed into the Subſtance of the Thread; as ſuppoſe a Particle fitted for this Purpoſe, that is to make a part of ſuch a Fluid as this we are ſpeaking of ought to be, ſhould ſtrike againſt the Interſtice of the Fibre R, S. Fig. 10. between No. 1, 2. at the time when it happens to be deflected towards *P.* as it is certain that the Interſtice a that time is larger than at another, and likewiſe that thoſe Ends of the Particles No. 1. 2. which are neareſt one another muſ ſomething recede from their former Contacts againſt thoſe of the next Series; ſo ſuch a Particle may ſo far be carried in that when that part of the Fibre again returns towards Q. it may be cloſed up and ſqueezed forward between the longitudinal Surfaces, until it comes againſt an Interſtice of the next Order, and gets through that in the ſame Manner. And this Conjecture beſides the mechanical Account which may be given of it, is further ſupported by common Experience, by which it is evident that the Solids are invigorated with freſh Recruits of Spirits, immediately upon taking into the Stomach ſuch Meats and Drinks, as are ſpirituous, and contain in their Compoſition, plenty of Particles, very fine, active, and eaſily to be divided from the Reſt, of which kind the Fluid we are ſpeaking of muſt conſiſt; and thus every one upon eating a good Meal, or upon drinking of any ſpirituous Liquor, eſpecially if it be after long faſting, or a large Expence by hard Exerciſe finds himſelf immediately as ſoon as it is in his Stomach, raiſed with new Spirit and Vigour; which could by no means happen, where the Solids to obtain theſe Recruits altogether from the Blood, as it paſſes through the Brain, becauſe it is impoſſible that what a Perſon finds himſelf recruited by, ſhould in ſo ſhort a time have gone through the uſual Digeſtions and Circulations.

But by this it will be thought that I make no Difference between this Fluid and the *animal Spirits*, to which I muſt confeſs I do not, or can I poſſibly come at the leaſt Gueſs at any other ſort of *animal-Spirits* in a human Body beſides It. I am not inſenſible how much has been invented and ſaid hereupon by ſome cunning metaphyſical Heads, who to account for ſeveral of the Operations of the *Animal-Machine* have contrived ſome inconceivable nimble Meſſengers, to do whatſoever they have a mind to employ them about; but whatſoever Notions have been advanced concerning them, not agreeable to thoſe Laws, by which all material Agents operate, are meerly chymerical and deluſory. If there are therefore any other Spirits than that *Animal-Oil* or *Juice* which moiſtens and preſerves the Motions and Elaſticity of the Fibres, in the manner above-mentioned, and that are not ſubject to Mechanical Laws, I think it much more belongs to another Order of Men, than to the Phyſicians to tell us what they are.

And when that Elaſticity, which the Fibres obtain by the peculiar Contrivance of their component *Machinulæ* comes to be well conſidered: I cannot believe there will be found any want of thoſe imaginary Aids, to account for the animal Operations. Of this Fluid only then, which is in this Manner, and for the Purpoſes above-mentioned ſupplyed, I would always be underſtood to ſpeak, whenſoever I uſe the Terms *animal-Spirits* or *Oil*, *Liquidum Nervoſum*, *Succus Nervoſus*, the *Nervous Fluids* or *Juices*, it being nothing elſe in the animal Machine, than a convenient Moiſture to lubricate and facilitate the Motions of the ſeveral Parts, as it is abſolutely neceſſary for the Wheels and Movements of any Machine whatſoever.

And upon this View, with what wonderful Eaſe may be explained the Contents of the foregoing *Aphoriſm*? The Body by Exerciſe, that is by what is moderate, is made lighter upon a two-fold Account; both becauſe there is occaſioned by it a Subſtraction of its *abſolute* Weight, as it aſſiſts Digeſtion, and by breaking the Matter to be perſpired finer, it promotes the Diſcharge of that Matter; and becauſe at the ſame Time by the quickned Vibrations of the Solids, there is a larger Quantity of freſh Spirits taken up by them from the circulating Blood, both by the Secretion made of them in the Brain, and in the manner juſt now explained; whereby they become more invigorated, and ſo much the more able to carry on a due Diſcharge of all the vital Offices, and in ſo much that the Body alſo will be made relatively lighter, that is will not have the Senſe or Perception of ſo much *abſolute* Weight as it had before. The Ligaments and Muſcles are cleared of their Excrements by Motion, that is, whatſoever ſuperfluous Particles of the digeſted *Materia Perſpirabilis* may hang about them, is by Motion diſlodged and ſhook off: The Spirits are rendered finer; that is, ſuch Parts of the nervous Fluid as are juſt received by the Fibres, are by the Actions of their component *Machinulæ* broke ſmaller, and made fitter for the Services of the Oeconomy.

It would go too far for a Digreſſion, to enter into all the particulars, in which this Theory would afford a great deal of Light: I ſhall inſtance therefore but in two or three; firſt taking Notice what Diſorders this Fluid is moſt likely to fall into, or how it is moſt liable to be diſtempered, which I think is plain, to be one of theſe two ways, either by becoming too groſs and ſiezy, or too fine and exhalable. The firſt may be occaſioned by a Want of ſufficient Agitation and Motion in the Solids, whereby its Parts attract one another, and form viſcid Coheſions, in the ſame manner as it happens in the Blood in the ſame Caſe, which renders the Motions of the fibrile *Machinulæ* very difficult and troubleſome, and ſometimes ſo obſtructs or plugs up thoſe *Vacuola* between their tranſverſe Surfaces, which are neceſſary to the Maintenance of their Elaſticity, as to prevent in a great Meaſure at leaſt, their Powers of Reſtitution, when they are diſtracted; as it happens in a *Leucophlegmatia*, *Anaſarca* and the like; where the Springs of the Fibres are ſo much deſtroyed, that an Impreſſion upon a Muſcle will ſometimes remain a great while, before its conſtituent Threads can recover their natural Dimenſions: Another Diſorder of this Fluid and which is oppoſite to the former, is its being broke too fine; which will make it ſo exhalable as to fly of in Quantities, greater than the digeſtive Power in the Stomach, is able to recruit: and this is often brought about by too violent Exerciſe, too large Evacuations, or drinking too great a Plenty of Spirituous and hot Liquors, whereby the Conſtitution of the Blood is ſo far weakned, as not to give a due Reſiſtance to the Conrractions of the Veſſels which circulate them, whereupon they vibrate quicker, and break the Nervous Juice too fine; which brings on a Hectick and Death if not timely remedied,

Nothing is more plain than that the firſt of theſe Diſorders is to be remedied by giving brisker Motions to the Solids, and increaſing the Vibrations of the Contractile Veſſels, in which how far Exerciſe will go, cannot be a Secret to any one who is at all acquainted with theſe Matters; as likewiſe what Sorts of Exerciſe will beſt agree to the Caſe in Hand, and moſt effectually fall in with the Intentions of Cure; and whether it is to be brought about by Medicine, or external Means, or Both; for Vomiting as hath before been taken Notice, and every thing which acts as a *Stimulus* comes under this Head, and their Efficacies are chiefly to be determined, by their greater or leſſer Power of irritating, ſhaking, and Contracting the Fibres. By theſe Means the Fibrile *Machinulæ* are ſo forceably moved, as to looſen ſuch Parts of the *animal Oil*, as are obſtructed in their Interſtices, and by degrees break them ſmall enough for Expulſion; and a freſh Stock of ſuch Spirits will be ſupplied, as will reſtore to them their natural Springs. The latter Diſorder is to be rectified by Medicines and a Diet that agglutinates, and gives a greater or ſtronger Conſiſtence to all the Fluids, and by all ſuch means as check the inordinate Motions of the Solids, in which beſides the Ceſſation from uſual Exerciſes, *Opiates* ſeem to have the greateſt Share, and to be the moſt efficacious; ſo that upon the whole it ſeems, that to keep from either of theſe Extreams, and preſerve the Body in perfect Health, Care is to be taken to maintain a juſt Ballance, between the Elaſtick or compreſſive Force of the Solids, and the Reſiſtances of the circulating Fluids, becauſe if the *Equilibrium* is loſt on either Side, the Body cannot but fall into ſome Diſtemper; and in this conſiſts the whole Art and Buſineſs of a *Rational Mechanical Practice*, to know when to add to, or ſubſtract from the Reſiſtances of the Fluids, and when to check or ſpur the Motions of the Solids, and alſo to be well acquainted with the various Methods, by which all theſe Intentions are to be brought about.

But as the *Gymnaſtick Practice*, is more particularly eſtabliſhed by this Theory, and as this ſort of Management of ſome Diſeaſes, ſeems much of late to have got into the good Opinion of the World; I cannot forbear juſt taking Notice how wonderfully the Effects of Muſick in ſome extraordinary Caſes are explained hereby; for according to this Contexture of an animal Thread, it is very plain that the leaſt Stroke imaginable upon it, muſt move its component *Machinulæ* in all their Parts; every Wave therefore or Undulation of the Air, which is made by a muſical Inſtrument, gives the Fibres of the whole Body, more or leſs, according to their Degrees of Tenſion, correſpondent Concuſſions, whereby all the *Machinulæ* are ſucceſſively moved from one to another throughout the whole Thread; and conſequently the Spirits are not only raiſed and made finer; but the other animal Fluids are alſo more briskly agitated, and their preternatural Coheſions, and Viſcidities deſtroyed. And this Advantage has Muſick above any other Exerciſe, that thoſe Concuſſions made upon the Fibres thereby, are ſhort, quick, and eaſy, whereupon the nervous Fluid is not only more briskly agitated, but alſo the natural Contextures of all the animal Threads are better preſerved by their never being overcharged hereby, as they frequently are with other Exerciſes, upon this View the extraordinary Effects of Muſick in ſeveral Diſtempers ceaſes to be a Wonder, and it rather comes to be admired, that it is not much more brought into uſe.

And as Muſick hath this particular Advantage, that it can never overſtrain the Solids, ſo the Injuries which are frequently received from rough Exerciſes, in ſome Conſtitutions eſpecially, are very manifeſt, and ſometimes never to be repaired; for when a Fibre is diſtracted ſo far that ſome of its component Parts coincide, ſuch a Coincidence will prevent the others drawing up again into their former Poſtures, and if this State of Diſtention continues until the *Vacuola* are filled with the nervous Juice, which of neceſſity will by Degrees be ſqueezed into them, it is a great Chance if the Fibre be ever repaired, but that it remains uſeleſs for ever after; and this is the Reaſon, why Strains upon ſome of the Tendons are ſo troubleſome, and ſometimes inſomuch that they continue weak and painful, if not altogether without the Power of Motion, thorough a Perſons whole Life.

This further admirably explains that common Effect of Exerciſe, in its giving always a greater Firmneſs and Strength to the Solids; for the more a Fibre is kept in Action, the clearer it will keep its component *Machinulæ* from the Lodgment and Adheſion of any foreign and ſuperfluous Matter upon them; by which means whenſoever it is diſtracted, there will be the more Room for each Particle to draw up again, and conſequently will its Return be with greater Force; but that Exerciſe which does this, is ſuch only as does not exceed the Powers of the Conſtitution, for otherwiſe the Conſequences mentioned in the preceeding Paragraph would follow, but when it is within ſuch Bounds as the Capacities and Stretch of the Solids will bear, then for the Reaſons already given, will they be rendered more able and ready to obey the Dictates of the Mind, in the performance of their natural Actions: But on the contrary by Reſt and Inactivity will every Part looſe in its Strength, and the leſs it is moved be ſtill rendered leſs able for Motion; and upon this Account it is that we daily ſee ſuch a mighty Difference between active ſtirring Perſons, and ſuch whoſe Circumſtances of Life, inures them to Labour and Exerciſe; and thoſe whoſe Inclinations and Condition, indulges them in Eaſe and Inactivity; the former are ſtrong, hardy and healthful, but the latter weakly, tender, and diſeaſed.

Only one thing further I'll take Notice of before I cloſe this Digreſſion, and that is with Regard to either ſudden Evacuation or Repletion. It is certain that neither of theſe can be done without Altering the Tenſion or Diſtraction of the

Fibres, all over the Body: for upon ſudden Evacuation, by what means ſoever the Matter is drawn off, the Reſiſtances of the Fluids againſt the Sides of the Veſſel, muſt more or leſs in proportion to the Quantity ſubſtracted be diminiſhed, and conſequently muſt every Thread which enters into the Compoſition of thoſe Veſſels, draw up or contract itſelf into a ſhorter Compaſs: and if this Evacuation be made in any particular Part, although the containing Part does more immediately draw up, yet in a very little Time will the Fibres of the whole Body be brought into Conſent, and acquire a cloſer Poſition of their conſtituent *Machinulæ*: as for Inſtance, ſuppoſe the Fibre R S. Fig. 10. be equally diſtracted in all Parts, by the Impulſe of any Fluid equally preſſing againſt it from one End to the other: now, if that Impulſe be taken off, by taking away the Preſſure of the Fluid againſt it, only between 1 2 it is very certain that its component Parts will draw up into a cloſe Contact with one another, immediately upon it, but the reſt of the Fluid Maſs, receding towards the Place, where the Subſtraction was made, leſſens its Preſſure againſt the Fibres quite to the other End, and therefore will all the *Machinulæ*, 1 2 3 4. from one End to the other ſucceſſively draw up; quicker or ſlower, according as ſuch Recedure is made, and as the Elaſtick or contractile Force of the Thread is greater or leſſer. And thus for the very ſame Reaſon, upon any partial Repletion when the Fibres are more diſtracted by it, in that Part than in any other, will even the remoteſt in a very ſhort Time be drawn into Conſent, and upon this Account, it is that a full Meal gives a Straitneſs and Weight to the whole Body as well as to the Stomach, as hath often been taken notice by *Sanctorius* in theſe *Aphoriſms*; and alſo hence may manifeſtly appear the Reaſon, why Perſons, eſpecially the moſt robuſt, upon making a large Quantity of Urine at a Time, feel a certain Shudder all over the Body, which is nothing elſe than a total Contraction of all the Solids, drawn into Conſent with that which is made by the Bladder upon the Expulſion of its Contents. But ſtill the moſt delightful and uſeful Application of this Theory might be to Phlebotomy, but the incomparable *Bellini*, hath already done this ſo well, by determining the Times of Bleeding, the Quantities to be drawn off, and the Conſequences of it, that there is no need of enlarging upon it, the Reader may conſult his Propoſitions *de Miſſione Sanguinis*.

APH. X.

Exerciſe promotes both the ſenſible and inſenſible Evacuation: but Reſt only the inſenſible.

EXPLANATION.

It is here alſo needful to take Notice, as before *Aph.* XX. XXI. *Sect.* I. of the difference between the matter of inſenſible Perſpiration, and that of the other Evacuations, as alſo the manner they are both diſcharged by. That of inſenſible Perſpiration is almoſt altogether prepared and made ſo, by the Actions of the conſtituent *Machinulæ* of the Fibres; which continuing always in their Motions, in Sleep and at Reſt, in the Diſcharge of the neceſſary vital Functions, that matter is prepared and diſcharged more regularly at ſuch Times, than when the Body is in Motion, becauſe then the additional Force of the circulating Fluid, will be ſo great againſt the excretory Organs, as to carry away and diſcharge more than ſometimes can be ſpared without Prejudice; and therefore the ſenſible Evacuations muſt needs be encreaſed by Exerciſe; but this alſo frequently makes it of great Service when there is an over Weight, and need of Diſcharges.

APH. XI.

If a Perſon lies in Bed ten Hours after Supper, he will perſpire well; but if he lies longer, there will begin to be a Decreaſe both of the ſenſible and inſenſible Diſcharges.

EXPLANATION.

Continuing longer in Bed than is requiſite for due Reſt and Perſpiration, cauſes too great a Waſte of the nervous Juice, and ſpoils the Contextures of the Fibres, by keeping them too long in a State of Relaxation; and therefore afterwards they are leſs able to perform their reſpective Offices, and make their proper Diſcharges.

A P H. XII.

Long Reſt renders diſtempered Bodies more heavy, both becauſe by Motion, the perſpirable Matter is prepared for Expulſion ; and becauſe during ſuch Reſt, the Meat and Drink, (if they are not what the Perſon has been accuſtomed to, but ſuch as ſick People are uſually treated with,) are not digeſted, from which ariſe a great many Inconveniences, and frequently Death.

EXPLANATION

By means of long Reſt and Inactivity, the nervous Fluid grows ſeizy, that inſtead of aſſiſting, it rather obſtructs the Motions of the Fibres ; alſo by a long State of Relaxation, it cannot but inſinuate it ſelf ſo much between the tranſverſe Surfaces of their component Parts, as to deſtroy very much their Powers of Reſtitution ; which Inconveniency is remedied or prevented by that Agitation and Comminution, this Fluid acquires by Exerciſe. That unaccuſtomed Meats and Variety of them, with which ſome People are alſo uſually treated, are prejudicial to Digeſtion, and conſequently to Perſpiration, has been already proved *Aph.* VII. and LII. of the *Third Section.*

A P H. XIII.

Whoever have a Pain in their Feet after lying long in Bed, walking will Cure them : but if the ſame happens upon travelling, the Remedy is Reſt.

EXPLANATION.

The Feet by long Diſuſe of accuſtomed Action, ſuffer in the ſame Manner as the whole Body by too much Reſt, (See *Aph.* preceeding) And for the ſame Reaſon. If therefore the obſtructed Perſpirable Matter, or the Viſcidity of the nervous Fluid, or any other ill Quality it contracts for want of proper

Agitation, occaſions Pain, the beſt Remedy muſt needs be walking, which gives the greateſt Exerciſe to thoſe Parts: And I cannot but think their Way of living, who feed high, and overſtock their Nerves with vinous Spirits, and uſe very little Exerciſe but riding in a Coach, enters a great Way into the Cauſes of the Gout, and eſpecially of the Feet being moſt commonly the Seat of it; for to this Purpoſe it is very obſervable, that ſuch Perſons that live mean and labour hard, if they ever happen to be honoured with this Diſtemper, it more generally fixes about the Hands and Arms.

APH. XIV.

There are two kinds of Exerciſe, one is of the Mind, and the other of the Body; that of the Body diſcharges the ſenſible Excrements; but that of the Mind, rather the inſenſible, and more eſpecially, thoſe of the Heart and Brain where its Seat is.

EXPLANATION.

To clear this *Aphoriſm*, as alſo the three following of all its Obſcurity, and fully to explain the whole Contents of it, would take up a great deal of Room. By Exerciſe of the Mind, in this, I cannot gueſs what is meant, unleſs that Power by which the vital Functions, eſpecially thoſe of the Heart and Brain are carried on, which is meerly Mechanical, and depends upon the particular Make and Conſtructure of thoſe Parts. But in the following *Aphoriſms*, it is plain he intends thoſe Faculties and Powers which the Soul hath, and can make uſe of in changing the uſual Procedure of the vital Offices. By the Exerciſe of the Mind therefore here, is to be underſtood nothing elſe than that State of Inactivity, wherein no Change is brought about in the Body, but ſuch as is the neceſſary Reſult of the vital Functions; which has before been proved the principal Cauſe of the Digeſtion of the perſpirable Matter, and its moſt regular Diſcharge by inſenſible Evacuation: and as the Heart and Brain are chiefly concerned herein, ſo upon that Account, they may be ſaid more than any other Parts to be cleared of their Excrements, that is, of their ſuperfluous Juices, and not at all becauſe they are any ny more the Seat of the Mind than other Parts of the Body. So that in this Senſe indeed the inſenſible Diſcharges are more promoted than by Exerciſe; for the Reaſon given above under *Aph.* X. of this *Section.*

APH. XV.

Too much Inactivity of the Mind, checks Perſpiration, more than that of the Body.

EXPLANATION.

The manner how the Mind or Thought works upon the Body, is a Myſtery, and no Way at leaſt to be brought under a mechanical Way of Reaſoning; becauſe it is not poſſible to repreſent and delineate, as we do corporeal Suſtances, that which never comes under the Notices of our Senſes, but in its Effects; and therefore we cannot have any Notion of the Procedure by which they are brought about, as we can have of all thoſe effected by phyſical Agents. But as it is certain that the Actions of the Mind, that is, the Thoughts that paſs thorough it, eſpecially when ſudden and intenſe, do influence very much and alter the Conſtitution, ſo far as neceſſarily to bring it under the Phyſitian's Care; the wiſeſt muſt herein be contented, to eſtabliſh his Rules upon Obſervation only, and therefore it is no great Wonder to find even *Sanctorius* hereupon very obſcure, and often contradictory to himſelf as in this *Aphoriſm*, what is intended by Reſt or Inactivity of the Mind, is very hard to conceive, unleſs it be ſuch a compoſed indolent State of it, as is not diſturbed and ruffled by any violent Paſſions; for waking it is impoſſible it ſhould be free from Action, that is, from having ſome Thoughts or other paſs thorough it. So that if its being raiſed up into Paſſion ſometimes, is meant that Exerciſe which is ſo beneficial and conducive to a good Perſpiration, it much more becomes a rational Creature to forego the Benefit, than enjoy the Advantages of it, as the Pleaſures of a rational Mind, are preferable to ſenſual Enjoyments. That ſuch Engagements of the Mind indeed as fill it with Pleaſure and Gaity, may with Reſpect to the State of Indifference, be called an Exerciſe of it, is not to be objected, and that ſuch a Diſpoſition may ſo far aſſiſt the natural Vibrations, of the

Nerves, as to render their Juices fitter for their proper Offices, is not to be queſtioned, but then this does not well fall in with the Contents of the following.

APH. XVI.

Thoſe Exerciſes of the Mind, which are moſt conducive to exhale the Spirits, are Anger, ſudden Joy, Fear and Sorrow.

EXPLANATION.

Nor does this agree with a great many *Aphoriſms* of the *Seventh Section*, and the *Firſt Aphoriſm* more particularly ſeems to contradict it.

APH. XVII.

Even thoſe Perſons that are ſubject to vehement Paſſions, ſhall waſte more by Perſpiration lying in Bed, than ſuch, who enjoy a Serene Mind, by the moſt violent Exerciſes of the Body; as it appears by thoſe who play at *Tennis*.

EXPLANATION.

Nothing is more obſervable than that violent Motions of the Mind, waſt the Spirits, and bring great Diſorders upon the Conſtitution; and this they ſeem to do as *Stimuli*, univerſally irritating and twitching the Nerves, in ſuch a Manner as diſturbs their regular Contractions; but how they ſhould occaſion ſuch large Diſcharges of the perſpirable Matter, as violent Exerciſe, I cannot conceive.

APH. XVIII.

By too much Exerciſe, the Excrements of the firſt and ſecond Concoctions are for the greateſt Part diſtributed thorough the whole Habit of the

Body; by which the Belly becomes coſtive; but the Body is rendered lighter, becauſe the inſenſible Evacuation is much greater, than the Quantity of Excrement expelled by Stool.

EXPLANATION.

As it already abundantly appears that Exerciſe very much aſſiſts Digeſtion, ſo if it be too great but eſpecially if it be too long continued, it will ſo much enlarge the cuticular Paſſages, by carrying off a greater Quantity than uſual thoſe Ways, that all the other Evacuations, will in proportion to ſuch Encreaſe be leſſened, and amongſt the Reſt that by Stool. And therefore notwithſtanding the Body by this means grows coſtive, yet as the cuticular Diſcharge is much the largeſt, the Encreaſe of that will ſo far exceed the Diminution of the other, as to render the Body lighter thereby.

APH. XIX.

Violent Exerciſe both of the Mind and Body, renders Perſons lighter but it haſtens on old Age, and threatens untimely Death; for according to the Philoſopher, thoſe who are exerciſed, dye ſooner than thoſe who are not.

EXPLANATION.

Exerciſe beyond the natural Strength of the Conſtitution, cannot but by Degrees wear away the Solids, and deſtroy that peculiar Contexture of the *Animal Threads*, by which they are maintained in their Motions, and the due Diſcharge of their ſeveral Functions; and conſequently it muſt needs bring on old Age or immediate Death.

APH. XX.

Violent Exerciſe, diſcharges from the Body overloaded with Meat, or crude Juices, leſs than uſual of the ſenſible Excrements; and hardly any thing at all inſenſibly.

EXPLANATION.

In ſuch Caſes therefore, Abſtinence, Diluting with very ſmall Liquors, and gentle Motion, are beſt, becauſe Exerciſe that is violent, will then ſo much overſtrain the Fibres, as to deſtroy very much their Powers of Contraction, and thereby ſo much hinder Digeſtion, as to leſſen both the ſenſible and inſenſible Diſcharges.

APH. XXI.

By Exerciſe the Body perſpires the leſs, but the more by Sleep, and the Belly is rendered thereby more looſe.

EXPLANATION.

This is true only of immoderate Exerciſe, for gentle Motion much aſſiſts Digeſtion and Perſpiration, as fully appears by *Aph.* IX. of this *Section*, and that the Belly is looſned by the Perſpiration which is performed during Sleep, is no otherwiſe, than as all the Solids are thereby ſupplied with a convenient Share of Moiſture, and are thereby fitted the better for their ſeveral Offices.

APH. XXII.

Frictions and Cupping, in Bodies full of Crudities, hinder Perſpiration.

EXPLANATION.

It may be laid down fot a certain Rule, that any Sort of Exerciſe, and every Attempt which is made by moving the Solids, to break the Viſcidity of the Fluids, and thereby make any Diſcharges, if it does not effectually ſucceed, the Obſtruction will be made much the greater, and the Body brought into a Worſe Condition than before, becauſe where ſuch means do not anſwer, the Fibres will by them be ſtrained, and leſs able afterwards to make the like Attempt, ſuch means ought therefore to be entered upon with the utmoſt Caution and Prudence. And whereas Frictions and Cupping, are frequently of wonderful Service, yet their anſwering their Intentions by giving a Spur to the Solids, and promoting the Contractions of the Fibres, if the Overcharge deſigned to be moved by them, does not give Way, the Fibres will be hurt in their Springs, and thereby afterwards not ſo able to contract as before, and conſequently there will be leſs digeſted and perſpired, and the Obſtructions rendered more obſtinate.

A P H. XXIII.

Exerciſe is then moſt wholeſome, when the Body after the firſt and ſecond Concoction, is reduced twice a Day before Eating to its wonted Standard.

EXPLANATION.

This is without Doubt a very good Rule, but without the Ballance cannot exactly be known, and therefore muſt be judged of by the *Relative Weight*, that is the perception a Perſon has at ſuch times of his own Weight, which if attended to with Care, is ſufficient to prevent any one falling into Extreams on either Hand.

A P H. XXIV.

Swimming ſoon after violent Exerciſe is bad; becauſe it very much obſtructs Perſpiration.

EXPLANATION.

This is exactly the ſame as *Aph.* XIV. *Sect.* II.

APH. XXV.

Violent Exerciſe where the Wind blows, is bad.

APH. XXVI.

From the Wind comes an Obſtruction of the perſpirable Matter; and from Motion its Acrimony.

EXPLANATION.

See *Aph.* XVI. XXI. *Sect.* II.

APH. XXVII.

Riding ſeems rather to promote the Perſpiration of the Parts above the Loins, than below them, but amongſt the Riding Paces, the Amble is the moſt wholeſome, as the Trot is the leaſt ſo.

EXPLANATION.

The Advantages ariſing from Riding, has been of late ſo much talkt of, as to bring this Exerciſe into good Eſteem, and undoubtedly with a great Deal of Reaſon: But its moſt fond Admirer ſeems to be *Baglivi*, to whoſe *Specimen de Fibrâ Motrice*, the Reader may turn for further Satisfaction. Mr. *Fuller* alſo has ſaid much hereupon in his *Medicina Gymnaſtica*, and has carried his Reaſonings ſo far, that were his Hints attended to and practiſed, it would be no uncommon Thing to meet a Man upon the Road, riding full Speed from the Gout or a Rheumatiſm: For he muſt certainly be in the Right, that during ſuch violent Motion, the Pain of thoſe Diſtempers will not be perceivable; but the Reaſon I fear is not from any Removal of the Cauſe, but a Suſpenſion of the Means by which it is communicated from its Seat to the Brain, or common *Senſorium*, for that Reflux of the nervous Fluid towards the Brain, from the part affected, is during the Violenee of another Motion prevented, and therefore nothing is felt of that part ; but as the Cauſe it ſelf is not removed, when that Motion ceaſes, the *Succus Nervoſus* from the wonted Irritation of the Fibres will be modified, as before ; ſo that as ſoon as ſuch a Perſon ſlacks his Pace, the Diſtemper will overtake him. That there is a great Difference as to the Paces is very certain, one being more agreeable and advantageous to ſome Caſes and Conſtitutions than the other which a judicious Perſon will ſeldom fail to foreſee ; but that Ambling is moſt wholeſome, and Trotting the worſt I cannot conceive. Indeed the former does not give ſuch ſtrong Concuſſions to the Fibres as the latter, and therefore may be more proper for weak People, and where the Motion is not required to be great, but the latter for the ſame Reaſon, is by all Means to be preferred, where the Body wants to be ſhook more forceably, and is able to bear it. And in Obſtructions of the *Viſcera* eſpecially, this Exerciſe cannot but be of great Advantage, becauſe as *Sanctorius* rightly obſerves, it more particularly affects and ſhakes the Head and Trunk of the Body.

APH. XXVIII.

Carriage in a *Litter* or a *Boat*, does not ſo well promote Perſpiration as walking.

APH. XXIX.

The Motion of a *Litter* or a *Boat*, if it continues long, it is moſt healthful ; and then only becauſe it wonderfully promotes due Perſpiration.

EXPLANATION.

That Carriage in this Manner is not ſo ſerviceable as Walking is no Wonder, becauſe Walking gives a conſiderable Exerciſe to moſt of the Muſcles of the Body, and therefore it helps Digeſtion, and prepares the perſpirable Matter for Expulſion, but this is not any further to be looked upon as an Exerciſe, than as by it there is a Change of Place, for even all that Time the Body is as much at Reſt as in Bed, and it gives no manner of Exerciſe to the Muſcles; how therefore it ſhould be ſo advantageous by its long Continuance, I cannot imagine.

APH. XXX.

To be carried in a Chariot is of all the moſt violent; for it not only forces out the indigeſted perſpirable Matter, but it is alſo very injurious to the Solids of the whole Body, more eſpecially the Kidneys.

EXPLANATION.

The Motion which Riding in a Chariot gives a Body, in rough Ways and upon Stones, as it is very conſiderable, and chiefly in ſhort ſtrong Shocks, ſo the *Viſcera* by their continued Repetitions, are frequently overſtrained, and have ſome of their principal Fibres ſo damaged in their natural Contextures, as not afterwards to be able to diſcharge their reſpective Functions; and the Reins more eſpecially by ſuch Shocks, as their Office is to ſecern the moſt heavy ſaline Parts from the Blood, and gradually let it down by the *Ureters* into the Bladder, cannot but be frequently in a great deal of Danger of having their Contents thrown down faſter, than they ought to be, and the Capacities of the Paſſages deſigned for that Purpoſe will admit of; whereupon thoſe Paſſages become obſtructed, and that too with ſuch a Matter, as by its Weight and multiplicity of Angles, cannot but very much preſs upon, and wound the Membranes, and thereby occaſion very ſharp Pains.

APH. XXXI.

Leaping at firſt contracts the Strength inwards, then ſtrongly forces it outwards, inſomuch that it expels with Violence, the indigeſted Matter, with that which is digeſted.

EXPLA-

EXPLANATION.

That Leaping is an Exerciſe which puts the Body upon ſo much Violence, as to be attended with the Conſequences herein mentioned, will hardly be queſtioned, but what to make of contracting the Strength inwards, and then propelling it into the extream Parts I cannot tell.

APH. XXXII.

The Exerciſe of the *Top*, as it is compounded of that which is moderate and violent, *viz*; of walking and moving the Arms, it is very conducive to Perſpiration.

EXPLANATION.

This is an excellent Exerciſe, and may be uſed without any manner of Inconvenience, if Care be taken not to uſe one Arm much more than the other, which moſt are apt to do, by being readier with one Hand than the other, becauſe ſo doing is apt to occaſion a partial Diſtribution of the animal Juices, whereby one Side gets more Nouriſhment and Strength than the other, and the Body grows out of its proper Shape, as it happens hereby to a great many young People. The Motion of the Arms by this, ſo much Exerciſes the Muſcles of the *Thorax*, and helps to enlarge and preſerve the Capacity of the Breaſt, that it is very aſſiſting to the proper Office of the Lungs, as well as Perſpiration.

APH. XXXIII.

Moderate Dancing, without Jumping, comes the neareſt of any Thing to the Advantages of Walking: for it leiſurely expels the digeſted perſpirable Matter.

EXPLANATION.

This may perhaps help to reconcile ſome ſcrupulous Perſons to this Exerciſe, for there may a real Service, and that a very conſiderable one, be obtained from it.

APHORISMS

Added by the AUTHOR.

APH. XXXIV.

When Perſpiration falls ſhort of its proper Quantity in ſound Perſons, it is to be remedied by Exerciſe.

EXPLANATION.

This is very true, and is abundantly manifeſt from a great many of the foregoing, and therefore fully juſtifies the Reſtriction made of *Aph.* XXI. of this *Section*, in its *Explanation.*

APH. XXXV.

By too much Exerciſe the Fibres become hard; whence Old-Age, which is a univerſal Hardneſs of the Fibres; this by condenſing the Pores, ſuffocates the vital Heat: but moiſture by keeping them open procures long Life.

EXPLANATION.

Too much Exerciſe will break the nervous Fluid, ſo much as to occaſion a greater Waſte of it than can be ſupplied, and therefore the component *Machinulæ* of the Fibres, for want of this animal Oil, will looſe their Power of Motion and ſtand ſtill, which is Death; and the nearer a Perſon is brought by any means whatſoever to this State, the further may ſuch a Perſon be ſaid to be advanced towards old Age. But for condenſing the Pores, and ſuffocating thereby the *vital Heat*, is a Difficulty I cannot get over: although for Moiſtures opening them, and procuring long Life, may without Difficulty be underſtoood, in the Sence before laid down concerning an animal Fibre; and then it is no more than ſaying, the Wheels of the Machine will continue their Motion, ſo long as they are ſupplied with the Requiſites thereunto.

APH. XXXVI.

He who would preſerve a youthful Countenance, ought to take Care not to Sweat; or that he does not perſpire too much with Heat.

EXPLANATION.

Becauſe Sweating and promoting the cuticular Diſcharges beyond due meaſure, ſupplies the Skin with too great a Quantity of Moiſture, and makes it the ſooner looſe its beautiful Smoothneſs and run into Wrinkles, as it is very obſervable in the Hands upon dabling in any Liquor for a conſiderable time together.

Medicina Statica.

SECT. VI.

Of VENERY.

APHORISM I.

TOO great an Abſtinence from Venery, and an immoderate Uſe of it, obſtructs Perſpiration, but an immoderate Uſe of it does it moſt.

EXPLANATION.

The Action of Coition, as Dr. *Liſter* obſerves in his *Note* hereupon, is of the Nature of a Convulſion, at that Time therefore the Fibres cannot but be inſenſibly drawn up, whereby the cutaneous Pores will neceſſarily be ſtraitned, and the Expulſion of the perſpirable Matter of Conſequence hindered: too frequent a Uſe then of this Exerciſe, cannot but be very prejudicial, by retaining what ought to be diſcharged, and rendring the Body heavier; as well as by overſtraining and deſtroying the Force of the Fibres, (as hereafter will be proved.) Long Forbearance of it alſo, eſpecially whilſt there are conſiderable Irritations thereunto, may have the ſame Effect, both as the Part irritated will by Degrees draw alſo the Fibres of the whole Body into Conſent, that is into too great a State of Contraction; and as the Mind will likewiſe thereby be ſo employed, as not to admit of thoſe frequent Relaxations as are neceſſary to promote the natural Diſcharges. How too great Exerciſe of the Mind does this, will be explained in the following *Section*.

A P H. II.

Upon immoderate Coition, about a Fourth Part of the Quantity uſually perſpired, in a great many will be obſtructed.

A P H. III.

The Miſchiefs ariſing from immoderate Coition, are *mediately* from an obſtructed Perſpiration, but *immediately* they ariſe from the Injuries done to the concoctive Faculties.

EXPLANATION.

As immoderate Coition may hinder Perſpiration by keeping the Fibres too ſtrait, and leſſening the Paſſages; and thereby *mediately* give Riſe to all thoſe Diſorders which are wont to follow an obſtructed Perſpiration; yet the greateſt Injuries received thereby, are *immediately* from the Hurt which is done to the Force and Elaſticity of the Fibres. For it hath already been proved at large, that a right Diſcharge of all the animal Functions depends upon a due Tenſion and Springyneſs of the Solids; whatſoever therefore diſorders and weakens this Diſpoſition of the Solids, cannot but very much prejudice the whole Conſtitution; and that any violent Actions,(as that of Coition may perhaps be the moſt violent they are capable of,) are deſtructive of the Textures of the Solids, cannot be doubted, by any one who conſiders what hath been ſaid under *Aph*. IX. *Sect*. V. of an animal Fibre. For not only the component *Machinulæ* of theſe Threads, will be much injured in their Contextures, but alſo that animal Oil or Spirit which is beſtowed upon them to facilitate their Motions, will be ſo much ſqueezed out, and wore away, as very much to diſable them afterwards in their natural Motions; that is, according to the uſual Way of ſpeaking, an immoderate Uſe of this Exerciſe, will ſo weaken and diſpirit the Body, that the ſeveral Parts afterwards, will not be able but imperfectly to diſcharge their reſpective

Offices; whereby Digeſtion, Concoction, and all the natural Evacuations will be diſordered.

APH. VI.

It may be known that Coition proves beneficial, if after the following Sleep no Wearineſs is perceived, and no Alteration is found in the Body, with reſpect to its Weight.

EXPLANATION.

This is plain from the Reaſons given under the foregoing; for if ſuch as have been proved the Conſequences of its immoderate Uſe, do not enſue, but that on the contrary every thing is well and in its natural State; nothing can be more certain, than that it hath not been uſed beyond what the Strength of the Conſtitution will admit of without Injury; and that, if after the following Sleep, the Body is brisk and lightſome, is is a good Sign that by ſuch Exerciſe, juſt ſo much only was thrown off, as was convenient and neceſſary to be parted with, and that in the Room of what was ſo diſcharged durnig the Time of Sleep, there is a freſh Recruit of that which is much better and fitter for the Purpoſes of the Oeconomy.

APH. V.

The continual Thoughts of venereous Perſons, renders their Bodies ſometimes heavier and ſometimes lighter, heavier with a full, but lighter with an empty Stomach.

EXPLANATION.

Earneſt Thoughts upon a full Stomach is very likely to retard Digeſtion, by diſordering and interrupting the natural Tenſions and Vibrations of the Fibres; and as it ſtraitens the Fibres in general, ſo when it happens upon a full Meal, it rather cloſes and ſhuts up the Juices in their Paſſages, than promotes and helps forward their Motions, and therefore does what was then taken in remain longer in the Body and render it heavier; but when this is upon an empty Stomach and the Veſſels are empty, in Compariſon to what they are upon a full Meal, ſuch a Contraction of the Solids will occaſion their breaking, and making a greater Waſt of the Juices, than a more relaxed State would do, and thereby therefore, muſt the Body be rendered lighter.

APH. VI.

After immoderate Coition with a Woman, whom a Perſon hath been very deſirous before to enjoy, there will no Wearineſs preſently be felt; Becauſe the Pleaſure at ſuch a time aſſiſts the Perſpiration of the Heart, and gives it Vigour; from whence it happens that what is waſted by ſuch a one is the ſooner recruited.

EXPLANATION.

Upon this I muſt leave the Reader to make his own Comment; although indeed the Reaſon here given for the Non-perception of the Ill Conſequences which follow ſuch Embraces, holds good with Regard to the Diſtinction before made, between the *abſolute* and *relative Weight* of a Perſon; for that Satisfaction and Extaſy which ſuch Enjoyment may give, will, while it remains, be as a freſh Infuſion of Spirit and Strength, and thereby prevent any Senſe of Wearineſs; but as ſoon as that wears off, it is very likely a Perſon will feel the ſame, if not worſe Effects of his Raptures, than is common to a more indifferent Lover. How the Pleaſure aſſiſts the Perſpiration of the Heart, or ſtrengthens it any further than by ſuſpending a Senſe of Wearineſs, I cannot underſtand, or why at ſuch times a more ſpeedy Recruit ſhould be made than at any other.

APH. VII.

They who are very eager after Venery, if they check their Inclinations, a Lightſomneſs of the Body will immediately follow, becauſe they perſpire ſo much the better.

EXPLANATION.

If the Mind can be taken off from ſuch Inclinations without Uneaſineſs, it is very likely to have this Effect; becauſe that which is very conducive to excite thoſe ſtrong Deſires, *viz.* a warm vigorous Conſtitution, hardly ever fails to raiſe a great Deal by Perſpiration.

APH. VIII.

Immoderate Coition will expel that which is undigeſted by Perſpiration, and afterwards render the Fleſh colder.

EXPLANATION.

In the ſame Manner as any violent Exerciſe, by the ſtrong Contractions and Succuſſions of the Fibres, the perſpirable Matter will be thruſt forward and expelled faſter than it can be digeſted, and thereby alſo the nervous Fluid will be ſo much broke and waſted, that the Fibres will decay in their Strength, and conſequently afterwards the Motions of the Fluids be retarded, and thence a Decay of Heat.

APH. XI.

Theſe following are Indications that Coition hath not been hurtful; Urine equally digeſted as before, a Lightſomneſs of the Body, an eaſier Perſpiration, and the ſame *Standard* of Weight remaining; ſo that a Diet be obſerved the ſame both in Quantity and Qualities as before.

EXPLANATION.

This is but the ſame as the IV. *Aph.* above, only more particularly expreſſed.

APH. X.

The immediate Injury of immoderate Coition, is a Refrigeration of the Stomach; but afterwards an obſtructed Perſpiration; from whence eaſily ariſe Palpitations in the Eye-brows and Joints, and then in the more noble Parts.

EXPLANATION.

I cannot conceive how it cools the Stomach more than any other Part, which it does by weakning the Contractions of the Veſſels and the Motions of their Fluids, as hath before been taken Notice. A Diminution of Perſpiration, *Sanctorius* plainly ſeems to think, is its Conſeqnence, not as it ſtraitens the cuticular Paſſages, ſo much as by its weakening the Force of the Solids, whereby they become unable to perform their Functions aright, and ſufficiently digeſt the Fluids for their Diſcharges, and that it hath this Effect, is further moſt certain by the *Tremors* of the nervous Parts, and that general Imbecility it gives to the whole Body.

APH. XI.

Coition in Summer-time is moſt hurtful, not becauſe the Body then perſpires more, but becauſe as Concoction is then weaker, what is waſted is more difficultly recruited.

EXPLANATION.

The Reaſon is very plain, and abundantly confirmed from a great many of the foregoing.

APH. XII.

In the Act of Venery a great deal of Crudity is thrown off by Perſpiration, and if it be long protracted, thoſe Crudities which are at the Centre, will be thrown upon the Circumference and there occaſion Obſtructions, and render the Belly coſtive.

EXPLANATION.

All this is plain from what has before been ſaid about Exerciſe, and brought about in the ſame Manner, by too ſtrong and frequent Contractions of the Solids.

APH. XIII.

The mote a Perſon burns with a Deſire of Coition, by ſo much the leſs will its immoderate Uſe prove injurious.

EXPLANATION.

Becauſe ſuch a Deſire is a Sign of that Vigour in the Conſtitution, which is able to go through a great deal of Exerciſe without Danger.

APH. XIV.

The Injuries ariſing from immoderate Exerciſe, are chiefly felt after the next Sleep, for then by the *Ballance* it will be found, that Perſpiration hath been obſtructed, and that the Meat hath been ill digeſted, as alſo that the Stomach hath been much hurt.

EXPLANATION.

The Injuries receiv'd, are moſt likely to be diſcovered after the firſt Sleep, becauſe during that Relaxation, thoſe Parts principally concerned in the vital Offices, have it moſt upon them to diſcharge their Duties; what Damage therefore or Strains they have before received in Coition, will occaſion ſome Defect in that Diſcharge, which upon waking will ſoon be found out. Weakning the Stomach, and leſſning Perſpiration are Conſequences of one another, whatſoever therefore does the firſt, will alſo do the other; for what Paſſes not ſufficiently digeſted out of the *primæ viæ* into the Blood, will obſtruct the capillary Veſſels, and prevent a due Diſcharge by the Skin.

APH. XV.

Coition is wont to hurt the firſt Concoction, firſt by checking the Expulſion of the perſpirable Matter which is in readineſs to go off, and thereby converting the Food into Crudity.

EXPLANATION.

The firſt is done by drawing the Fibres too ſtrait, and the latter, by weakning the Force of the Stomach, as explained under *Aph.* X. above.

APH. XVI.

He who in Coition forbears the Emiſſion of *Semen*, is by it the leſs weakned; nay if he repeats the ſame Exercise the Day following, and then ejects what was the former Day prepared, will not be ſo much debilitated.

EXPLANATION.

This is beſt known to thoſe who have Command enough of themſelves to try the Experiment, which I believe are very few, unleſs ſuch as are pretty well advanced in Years, or thoſe who have been drained by too frequent Uſe of this Exerciſe.

APH. XVII.

He who in Coition on purpoſe forbears Emiſſion, will be apt to have a ſwelling in his Teſticles, becauſe the *Semen* is imperſpirable.

EXPLANATION.

By this therefore it appears that this Experiment, (if any have Patience to try it,) is not without being attended with conſiderable Hazard ; and it is very well known by thoſe whoſe Buſineſs leads them to be converſant with Perſons laſciviouſly inclined, that frequent Irritations without Emiſſion, have been attended with Conſequences very near as dangerous and troubleſome, as where by Coition a Venereal Infection hath actually been contracted. As for Dr. *Liſter*'s Reaſon, that the greater Danger ariſes from the Obſtruction of an animated Fluid, as the *Semen Maſculinum* is taken to be, the *Animalcula* therein dying, and thereby turning into Putrefaction ; I cannot ſee any thing in it, for there are none of the animal Juices, which will not by Stagnation, in what Manner ſoever they are ſaid to be *animated*, run into new Coheſions, and be changed very much from that State which before they appeared under. The *Semen* alſo is imperſpirable only as it is a thick tenacious Fluid ; and as there is not a ſufficient Compreſſion and Attrition of thoſe Parts where it ſtagnates, to break it ſmall enough, to paſs it off through the Subſtance of its containing Veſſels.

APH. XVIII.

Immoderate Coition, next to the Stomach, is moſt hurtful to the Eyes.

EXPLANATION.

As the Fibres of the whole Body are hereby overſtrained, ſo thoſe Parts which are moſt nervous cannot but be moſt injured; and as the Compoſition of the Stomach every one knows wholly to conſiſt of them, and that Viſion depends upon a due Contexture, and Supply of Spirits to the optick Nerves, nothing can be more plain, than that every thing which overſtrains the Nerves muſt more particularly be prejudicial to theſe Parts.

APH. XIX.

Immoderate Coition hurts the Sight, becauſe it draws from the Eyes a great Quantity of Spirits; from whence it comes that their Tunicles grow hard and rough, and alſo that their Paſſages are rendered leſs pervious.

APH. XX.

From a Diminution of Perſpiration, the Fibres compoſing the Tunicles of the Eyes, become more opake; by which Sight is contracted into narrower Paſſages, as through a Lattice: Spectacles throw the Objects into a Point, that they may diſtinctly be ſeen through one Paſſage only.

EXPLANATION.

The Meaning of the latter I confeſs is very difficult to conceive. But that Coition or any thing which puts a violent Strain upon the optick Nerves, may defraud them of their Spirits is very plain, as by ſuch ſtrong Contractions, their natural Moiſtures are preſſed out, upon which they muſt needs grow hard and criſpy, and thereby not ſo fit to be moved by external Objects, and convey thoſe Impreſſions to the common *Senſorium*, as are neceſſary to excite the Ideas of Colours and Figures.

APH. XXI.

By immoderate Coition the natural Heat is diminiſhed; and from a Diminution of natural Heat Perſpiration is leſſned; and from a Diminution of Perſpiration ariſe Flatulencies and Palpitations.

EXPLANATION.

This is a good Summary of the whole Doctrine of Perſpiration, and very well agrees with that Theory, upon which the preceding have been explained. Immoderate Coition here may be taken in common with any violent Exerciſe, or whatſoever deſtroys the Contextures and Springineſs of the Fibres; and theſe things have already frequently been proved to leſſen the *vital* or *natural Heat*, by diminiſhing the Velocities of the Fluids; and that by a Diminution of the Velocities, they grow thicker or more viſcid, in proportion to which is always the Quantity diſcharged by inſenſible Tranſpiration; and alſo that the more, *That* by the Surface is obſtructed, the more plentifully will it be collected within, which muſt occaſion Flatulencies and Diſtentions of its containing Parts. Palpitations ariſe from the weakneſs of the Fibres, becauſe they are thereby ſo much injured in their Contextures, as to prevent a Regular Flux and Re-flux of the nervous Fluid, whereby the Regularity of their Tonick Motions is deſtroyed, inſomuch that ſometimes they ſtand ſtill, and at others twitch and leap in a convulſive Manner.

APH. XXII.

Immoderate Coition requires but a ſlender Diet, and that of a good Nouriſhment.

EXPLANATION.

Becauſe it ſo much debilitates the Conſtitution, as to diſable it from diſpenſing with a plentiful way of Living, of ſuch Meats eſpecially as are hard of Digeſtion. Such a Diet therefore is moſt ſuitable for Perſons too much given to this Exerciſe, as will eaſily digeſt in the Stomach, and paſs into the Blood in a ſufficient Plenty, to recruit the continual Waſt that is made thereby; which Waſt as it conſiſts of the finer and moſt ſpirituous parts of the animal Juices, ſo ought the Body alſo to be conſtantly ſupplied with ſuch Meats and Drink, as afford the greateſt Quantities of the ſame Nature, and that can ſooneſt be converted into them.

APH. XXIII.

Coition heats the Liver and Kidneys, becauſe the Heat which it raiſes does not exhale; but it cools the Stomach, the Brain and the Heart, becauſe the Heat has more open Paſſages entirely to go off by; and the natural Heat is thereby in a great Meaſure reſolved.

APH. XXIV.

From hence by immoderate Coition ariſes Choler in the Liver, Gravel in the Kidneys, Crudities in the Stomach, a Catarrh from the Brain, and in the Heart Palpitation and Faintneſs.

EXPLANATION.

This, as any violent Exerciſe, affects the ſeveral Parts of the Body, according as by their Contextures and Offices they are diſpoſed thereunto. Thus the ſame thing which ſtrains by its violent Motions the moſt nervous Parts, and renders them weaker thereby; cannot but alſo more briskly agitate the Blood, and occaſion a greater Heat than before in thoſe Parts where it is moſt plentifully collected; and thus at the ſame time that the Liver, (where is the greateſt Collection of Blood for its Bulk of any part in the Body) is Heat, the Stomack is weakned; by which I can underſtand no more when *Sanctorius* ſays it is cooled; and thus of the other parts as they are naturally by their peculiar Makes diſpoſed to be affected. The Heat having more open Paſſages in one part to fly away, than another; and the Reſolution of it in the Stomach, any more than in the Liver; are Expreſſions that betray but a very imperfect Notion in Anatomy, which was but very lame before *Harvey*'s Diſcovery of the Circulation.

APH. XXV.

If thoſe Eatables which a Man takes in after immoderate Coition, beget Flatulencies, as Oyſters and new Wine, they are hurtful; becauſe they prrvent the Body's coming to its natural *Standard* afterwards.

EXPLANATION.

It is a ſure Sign that thoſe things which collect ſuch Vapours inwardly, do not go off in a due Quantity by the Skin, they are not good therefore at any Time, but eſpecially when the Solids, and conſequently the digeſtive Faculties, are weakned by any violent Motions: Whether what is here mentioned, or any other thing is apt to offend this Way, every one may beſt judge by his own Experience.

APH. XXVI.

Lean Perſons are moſt injured by Coition, becauſe it more heats and cools ſuch than others.

EXPLANATION.

This will not appear to be any Contradiction, when it is conſidered that the more a Perſon is immediately heat by any Exerciſe, the more will he be cooled aftewards, but whether it hath this Effect more upon lean than fat Perſons, I am not able to determine; for I believe theſe Conſequences are rather governed by the Intenſeneſs of the Actions at that time, than the Bulk of the Perſon.

APH. XXVII.

Immoderate Coition immeadiately renders the Body lighter, although in the End it diminiſhes Perſpiration; for it vehemently exerciſes both the Body and Mind; the Body, by a Concuſſion of all the Limbs; the Mind, becauſe it looſens that which is the Bond of Union between Body and Mind, *to wit*, the vital Spirits.

EXPLANATION.

The latter Part, although it is no uncommon Way of talking, lays me under inſuperable Difficulties. The former Part is plain, for during the Exerciſe, the Fluids are more agitated and broke, and a larger Quantity expelled by Perſpiration, upon which the Body is for the preſent lighter, but as the ſame Action alſo weakens the Solids, Digeſtion afterwards cannot ſo well be carried on as before, and therefore the perſpirable Matter will not be ſo plentifully diſcharged, and conſequently muſt the Body grow heavier.

APH. XXVIII.

If after Coition Sleep is uneaſy, it is a Sign that in the Act of Coition, there was a greater Waſt made of the vital Spirits, than by Sleep is again recruited.

EXPLANATION.

Such a Waſt and defect of Spirits in the Solids, may ſo much affect them in their Textures, as to prevent that eaſy Relaxation which is abſolutely neceſſary to ſound Sleep.

APH.

APH. XXIX.

After too much Coition, Sleep attracts the Crudities to the Heart: from whence ariſe *Languors*, an obſtructed Perſpiration, and an Encreaſe of Weight.

EXPLANATION.

This is much the ſame as the XXI. above, only more obſcurely expreſſed.

APH. XXX.

Old Men by immoderate Coition grow colder and heavier; but young Men lighter and warmer.

EXPLANATION.

In Old Men the Strength of the Solids is ſo much loſt, and that Animal Oil neceſſary for their Invigoration but ſo ſparingly ſupplied, through the Weakneſs of the digeſtive Faculty, that the Waſt which is made by Coition, is not to be repaired without a great deal of Difficulty; the Circulations of the Fluids are therefore the ſlower carried on, and thereupon there muſt be a Decay both of the natural Heat, and an Encreaſe of the Bulk or Weight, for want of due Digeſtion and Perſpiration. But this Exerciſe in young Men, who are apt to err on the Side of having an Overcharge of Juices, hath no other Conſequence than any other Exerciſe would have, which is the breaking the Juices finer, eſpecially the nervous Fluid, whereby the Solids will be rendered more Springy, and will perform their Vibrations ſtronger and quicker, upon which the Vital Heat muſt encreaſe, in proportion to the Encreaſe of the Velocities of the Fluids, and alſo muſt there a much greater Quantity be broke ſmall enough to go off by Perſpiration.

A P H. XXXI.

Coition in Young Men ſtrengthens the animal, vital and natural Faculties; it draws forth and raiſes the animal by Motion, the natural by an Evacuation of Superfluity, and the vital by Pleaſure.

EXPLANATION.

Coition, ſo that it be not to exceſs, is very likely in young Perſons to encreaſe the natural Heat, and raiſe the Spirits, becauſe like any other agreeable Exerciſe it ſhakes the Muſcles, and breaks and diſlodges any ſuperfluous Matter that hangs upon the Fibres, ſufficiently to exhale it inſenſibly; by which Means the Spring of the Solids is better maintained, and conſequently is the Blood circulated and digeſted, and thereby a more plentiful Stock of Spirits continually ſeparated, and diſpenſed to all the Parts of the Body. But on the contrary were this Exerciſe uſed to exceſs, would the nervous Fluid be ſo much waſted, that the Solids would decay in their Springyneſs, and therefore alſo muſt follow a loſs of Strength and Spirits. By corroborating the *Animal, Vital and Natural Heat* then is no more than that the Body becomes brisker and ſtronger; for the Diſtinction itſelf of the Heat of a living Body into *Animal, Vital*, and *Natural* is of no further Uſe that I know of, than to make a thing plain in it ſelf, full of Myſtery and Obſcurity, and to darken Truth with a Multiplicity of unintelligible Terms; which Unhappineſs even our Author is frequently apt to fall into, whenſoever he leaves Experiment and Matter of Fact, and endeavours to accomodate his Expreſſions to the School-Syſtems; otherwiſe he could not talk of driving out *Animal Heat* by Motion, raiſing the *Natural Heat* by the Evacuation of Superfluities, and the *Vital Heat* by Pleaſure. For what the *Natural Heat* of the Body is, and how produced ſee Explanation to *Aph.* LXVIII. *Sect.* I. where it is proved to ariſe from the Motion and Attrition of the animal Fluids, concerning which alſo Dr. *Picairne* demonſtrates theſe two Propoſitions.

I. *That at the ſame Diſtances from the Heart, the Heat of the Blood is as its Velocity.*

II. *That the Heat of equal Quantities of Blood moving with equal Velocities is as their Diſtances from the Heart.*

The Heat of the Body may indeed be encreaſed by Pleaſure, but then it is becauſe ſuch Pleaſure gives that Tenſion and Smartneſs to the Vibrations of the Solids, as any Exerciſe does, and therefore by the ſame Means does it encreaſe the Velocities and Warmth of the Fluids.

APH. XXXII.

For a Perſon to eat more plentifully than uſual, upon immoderate Coition would be deſtructive, if a Corruption of it does not follow.

EXPLANATION.

The Solids cannot but be ſo much weakned and relaxed after immoderate Coition, (as indeed would it be the ſame after any other violent Exerciſe) as not to be able to contract and carry on the Fluids with ſuch Force in their circulatory Motions, as is neceſſary to prevent their falling into Fermentation and Putrefaction. If therefore at ſuch Times a Perſon Eats plentifully, he thereby ſtill adds a further Weight to the Solids ; and therefore if what is taken in does not corrupt in the *primæ viæ* and run off by a *Diarrhœa* there is a great Hazzard of a putrid or Malignant-Feaver, by its getting into the Blood and corrupting there.

APH. XXXIII.

Before Coition a Perſon ſhould eat little or nothing ; and before Eating he ſhould not uſe Coition to exceſs, but rather quite forbear it.

EXPLA-

EXPLANATION.

Becauſe Coition violently contracts and draws up the Fibres, ſo that if ſuch a Weight be laid upon them as a full Meal occaſions, there cannot but be a great Danger of their being overſtrained, and injured in their Springs. Coition alſo by the ſame Reaſon ought not to be uſed juſt before Eating, becauſe after ſuch a State of Contraction is over, they naturally for ſome Time fall into the other Extream, that of Relaxation, and therefore will they then be unfit for ſuch ſtrong Contractions as are neceſſary to promote a good Digeſtion.

A P H. XXXIV.

When there is no Uneaſineſs felt after immoderate Coition, it is a very ill Sign, as with *Manaicks* the Caſe is the ſame, when the Spirits are inflamed, for they ſtrengthen the Nerves and Tendons for a ſhort time by their Dryneſs, but ſoon after, a Supply of freſh Spirits is cut off, and the Strength immediately thereupon decays.

EXPLANATION.

If after ſuch immoderate Coition there is no wearineſs felt, it is owing to the preternatural Contraction of the Fibres, which by being drawn up in the Act of Coition with ſo much Force, and continuing in that State too long, will not eaſily recede, and fall into ſuch a Relaxation, as is neceſſary to their Admiſſion of a freſh Supply of Spirits; the moſt natural Conſequence of which muſt needs be ſuch a Dryneſs and Criſpineſs of the Fibres, as is inconſiſtent with a right Diſcharge of their reſpective Offices, and therefore the Conſequence of ſuch Exceſs muſt needs be very bad. With Manaicks the Caſe is ſo far the ſame, that the Solids are under a violent State of Contraction, inſomuch as to hinder thoſe due Refluxes of the nervous Fluid, as are neceſſary to the Buſineſs of Senſation, and to communicate to or make ſuch Impreſſions upon the Mind, as is uſual from external

Objects. And this State of Contraction while it continues, gives an unuſual Strength to all the Solids, not as *Sanctorius* ſays, properly by drying them, but by encreaſing the Contacts of their conſtituent *Machinulæ*, as above explained in the Digreſſion, concerning the *Elaſticity of an animal Fibre*, by which they are with more Difficulty diſtracted, and when ſo, draw up again with the greater Force. But as this State of Contraction prevents the Derivation of a freſh Supply of Spirits, and it cannot be long before the preſent Stock will be broke and wore away, they cannot but in a little Time looſe that Order and Diſpoſition of their component Parts, which is neceſſary to continue their Motions, and fall into a total Incapacity of Contracting any longer.

APHORISMS

Added by the AUTHOR.

APH. XXXIV.

Coition upon natural Provocation, is good; upon the Incitations of the Mind, it is injurious to the Memory and its other Faculties.

EXPLANATION.

By Nature or natural Provocation is to be underſtood, when there is ſuch a Repletion of the Seminal Veſſels as diſtends them, and by its Irritation ſolicits for Ejectment, in which Diſcharge there can be no ill Conſequence, for a Perſon is rather thereby rendered more lightſome and chearful. But when there is not ſuch a Supply for Ejection, and the Mind by its Purſuit of ſuch Thoughts, occaſions ſuch a Derivation of the Spirits or nervous Fluid into thoſe Organs, as irritate them to Coition, it cannot but ſtrain the Solids, and occaſion ſuch a Waſt of Spirits, as is inconſiſtent with that ready Obedience to the Dictates of the Mind, which is neceſſary for a due Exertion of its Faculties.

A P H. XXXVI.

The Weight of the Body in weak Perſons is encreaſed by Coition; becauſe ſuch perſpire for it the leſs.

EXPLANATION.

Becauſe it is too hard an Exerciſe for ſuch Conſtitutions; for where the Solids are very weak and infirm, almoſt the leaſt Motion more than uſual will overreach and diſcompoſe them, when therefore ſuch Perſons uſe Coition, by weakning their Solids they ſtill further hinder Digeſtion and Perſpiration, and conſequently muſt thereby encreaſe in Bulk and Weight; unleſs ſuch a Diminution of that Evacuation be compenſated by the Encreaſe of ſome other; as it may very likely be by a *Diarrhæa*, according to the following.

A P H. XXXVII.

Coition without ſatiety hinders Perſpiration, becauſe it abates the Strength, whence the Body becomes heavier, unleſs a *Diarrhæa* happens upon it.

A P H. XXXVIII.

Coition to exceſs does a great deal of Harm, by heating and drying the Body; but if the Heat be ſupplied by inſenſible Perſpiration, and the Dryneſs by any proper Liquor, there follows no Injury.

EXPLANATION.

The Body is rendered hotter upon Coition, by the Motion it gives to all Parts, and dryer by the Attrition and Waſt of a great Quantity of animal Juices, but if afterwards there be procured a free Perſpiration of all the Parts, the Fibres will ſoon be recruited with a freſh Stock of Moiſture, and thereby will both that Heat and Dryneſs be removed.

APH. XXXIX.

Such a Motion of the Body, as reſembles that of a Dog in Coition, is more hurtful than a bare Emiſſion of *Semen*; for the latter wearys only the internal Parts; but the other tires both the Bowels and Nerves.

EXPLANATION.

What is meant by wearying the internal Parts moſt, I do not underſtand. Any violent Motion however occaſioned, and in whatſoever Part, eſpecially when it is attended with intenſe Thought at the ſame Time, will ſoon by the Conſent of Parts, be felt in its Conſequences all over the Body.

APH. XL.

To uſe Coition ſtanding after a Meal is hurtful; becauſe as it is upon a full Meal, it hinders the Offices of the Bowels; and by the ſtanding Poſture, thoſe of the Muſcles, and diminiſhes that Quantity which it is beneficial to get rid of by Perſpiration.

EXPLANATION.

The Conſequences of Coition upon a full Meal, hath been explained already under *Aph.* XXXIII. of this *Section.* That ſuch a Poſture, as Standing, may occaſion a greater Strain upon the Muſcles at ſuch a time, is not very unlikely.

APH.

A P H. XLI.

Coition is injurious after Exerciſe; after Meat not ſo much; but after Sleep it is the moſt wholeſome of all.

EXPLANATION.

By Exerciſe it is to be ſuppoſed the Solids have been already exhauſted of a great Deal of their proper Moiſtures, and therefore cannot be in any good Condition to engage in a freſh one, that of it ſelf requires a good Stock of Spirits Coition after Meat, as it is circumſtanced may be worſe, or not ſo bad; but after Sleep it is leaſt prejudicial, becauſe then the Solids are plentifully furniſhed with freſh Spirits, and it is of Service to uſe any eaſy Means of drawing them up into that State of Contraction, as they muſt neceſſarily be in when awake. Coition therefore at this time not only aſſiſts in this good End, but at the ſame time, (as it was before explained of Yawning and Stretching) aſſiſts in ſhaking off ſuch Parts of the perſpirable Matter, as frequently are apt to lodge in the Excretory Paſſages.

A P H. XLII.

Coition heats the Liver, and cools the Stomach; from the Stomach proceeds crude Moiſture; from the Liver, Choler; whence ariſes that kind of Choler which is called *Porracea,* the Colour of it reſembling that of a Leek. The Remedy is a ſlender Diet and a free Perſpiration.

EXPLANATION.

The ſame Cauſe does very often differently affect different Parts, inſomuch that what occaſions a greater Heat in one, does frequently cool another; and thus Coition as it exerciſes the Muſcles of the whole Body, and gives them very ſtrong Contractions, may at the ſame Time heat the Liver by occaſioning a greater Protruſion of Blood into it, that it cools others, by keeping them in ſuch a Tenſion, as will not admit of their neceſſary Influxes of Blood. For upon a univerſal Contraction of the Muſcles, the Blood muſt neceſſarily be thruſt forward the faſter, and where there is the leaſt Reſiſtance there will be the greateſt Quantities of it derived; all the *Viſcera* therefore, and rhe Liver eſpecially, by the great Store of Blood Veſſels with which it is furniſhed, by their diſproportionate Reſiſtance to the Muſcular Parts, muſt be at ſuch Times overcharged with Blood, and conſequently rendered hotter; but ſuch a Part as the Stomach, which is endued with a vaſt Number of Nerves, in proportion to the Quantity and Bulk of Blood Veſſels, will by ſuch Contractions be ſo far drawn into Conſent, that not only muſt it be rendered cooler by too ſmall a Share of Blood, but alſo will it be over-ſtrained, as afterwards to fall ſo far into the other Extream of too great a Relaxation, as to admit of a greater Derivation and Diſcharge of that ſaline Juice, which is accuſtomed to be ſeparated by its Glands, than before, and thereby will it not only be rendered cooler, but alſo overcharged with what *Sanctorius* in the *Aphoriſm* calls crude Moiſtures; why a ſlender Diet is a good Remedy upon ſuch Diſorders may be upon two Accounts, both as it lays not too great a Load upon the Stomach, whereby its Fibres again in a ſhort time will recover their natural Springs, and be able to manage as large a Meal as before, without any Inconveniency; and as it ſubſtracts from the Bloods uſual Supply, it in time leſſens its Quantity, whereupon it is again circulated in all Parts in its natural Quantities; and ſuch partial Stagnations prevented, which otherwiſe it would be apt to fall into, and by forming preternatural Coheſions and Viſcidities, occaſion dangerous Obſtructions. But this Diet as it ought to be ſlender, that is, ſmall in Quantity and eaſy of Digeſtion; it ought alſo to be ſuch as affords a good Supply of Spirits to the Solids, that is ſuch as we commonly call warm and ſpirituous; for otherwiſe the Fibres would continue ſo long relaxed, that the Fluids would be gone ſo far into preternatural Coheſions, as not eaſily afterwards to be broke, and continued in their due Circulations, and whereupon there might be given Riſe to ſome untoward Diſorders.

Medicina Statica.

SECT. VII.

Of the AFFECTIONS *of the* MIND.

APHORISM. I.

AMongſt the Affections of the Mind, thoſe of Anger and Joy, make Perſons lighter; thoſe of Fear and Sorrow, more heavy; and the other Affections operate in Proportion to their Participation of theſe.

EXPLANATION.

This *Section* is attended with much more Difficulty as to its Explanation, than any of the former, becauſe the *Propoſitions* herein contained are not demonſtrable in the ſame Manner, as thoſe which relate only to the Agency of phyſical Cauſes. For as it was before taken Notice of under *Aphoriſm* XV. *Section* V. the Operations of the Mind upon the Body, and *e contrà*, do not come under a mechanical Way of reaſoning; it being impoſſible to decypher and trace out the ſeveral Steps and Ways of Procedure of thoſe Agents, which can by no means be brought under the Cognizance of our Senſes. In Enquiries therefore of this kind, there muſt be allowed ſome farther *Data* than need be in ſuch as are meerly phyſical; ſo that a Perſon engaged herein, is like a Traveller who has a great way been conducted by Lanes and

Cauſways, where he had ſuch Marks continually in View, as prevented his going out of his Road, but at length comes to a wide Common, where the multitude of Paths without Diſtinction, makes him ſtop and recollect, by what Guides he can with the moſt certainty proſecute his Journey; whereupon for want of readier Means, he finds himſelf obliged to have Recourſe to his Compaſs; which by conſtant Obſervation finding the Needle always towards ſuch a Point, and to conduct him with Succeſs, he learns thereby upon all ſuch Emergencies how to direct his Courſe, although he is ignorant entirely of the Cauſe why the Needle ſhould always have that particular Inclination. And thus although a Perſon cannot tell either how Thought can produce ſuch a Change in the Humours of his Body, or how ſuch a Conſtitution of the Humours can effect the Paſſions of the Mind, yet if by conſtant Obſervation and Experience it can be found that ſuch a Paſſion or Temper of Mind is always attended with ſuch Conſequences in the Conſtitution; and that ſuch a particular Temperature of the Conſtitution, always affects the Mind with ſuch particular Paſſions and Diſpoſitions, it will afford very ſufficient Ground of Certainty to a wary and conſiderate Perſon, in his Reaſoning upon their Conſequences; and in the Meaſures which ought to be taken in rectifying the Diſorders of either. As for Inſtance, if Anger or Chearfulneſs are always found to render the Body lighter, although we cannot tell how thoſe Particular Paſſions do firſt modifie any Parts of the Body, ſo as to produce that Effect, yet it being plain how phyſical Agents do the ſame, it is highly reaſonable to conclude that theſe do it alſo by the ſame Means; that is thus far, as we know that an Invigoration or an Encreaſe of the contractile Force of the Solids will promote Digeſtion, encreaſe the Evacuations, and render the Body lighter, ſo we have the higheſt Reaſon to believe, when we ſee the ſame to be the Conſequences alſo of a Man's being paſſionately angry, or very merry, that theſe Diſpoſitions of the Mind, (although we do not know how) do give that particular Modification likewiſe, and degree of Tenſion to the Fibres, as cold Bathing, a cold clear Air, or moderate Exerciſe, when we ſee them attended with the ſame Conſequences. And as we know theſe phyſical Cauſes have this effect, by drawing up and ſhaking the conſtituent *Machinulæ* of the Fibres, promoting their Elaſtick Powers, and breaking the nervous Juice finer, ſo ought it to be concluded,

cluded, that theſe Paſſions of the Mind do alſo give the ſame Modifications to the Fibres, by which the ſame Effects are produced. Further in the like Manner, if Fear and Sorrow are found to be attended with an Encreaſe of Weight, it is reaſonable to think that they do it by the ſame Means, as by which all thoſe phyſical Agents produce the ſame Effect; that is by ſlackening the Fibres too much, abating Digeſtion, and conſequently alſo leſſening the Evacuations.

With this View therefore may we proceed in our Reaſonings upon the Contents of this *Section*, with ſome tolerable Clearneſs and Satisfaction. That is, when any Paſſion of the Mind is ſaid to have this or that Effect upon the Body, we ought to conſider that Paſſion only as a phyſical Agent; as it draws up or ſlackens the Fibres, and as it encreaſes or leſſens the Evacuations; but in this we are guided only by Obſervation and Experience, which is abundantly ſufficient to a Perſon of any tolerable diſcerning; for by the preſent State of the Secretions and Evacuations it is always eaſy to tell ſo far, whether the Solids are too ſlack or too ſtrait, and on which Side the *Equilibrium* is loſt between the contractile Force of the Solids, and the Reſiſtances of the Fluids: And whereas by the preſent Condition of the Body, it will eaſily appear on which Side the Fault is, ſo when any Error therein happens, without any other manifeſt Cauſe than a Paſſion of the Mind, it is highly concluſive that ſuch an Error is owing to that Paſſion; and that it is brought about by the ſame Means as by any phyſical Agent; that is, by drawing up their Fibres too ſtrait, or by letting them down too low, and therefore that for its Remedy, ought the ſame Intentions of Cure to be purſued.

Upon this View, the *Aphoriſm* above may very eaſily be explained. Anger and Joy keep the Fibres in their natural Tenſions, aſſiſt the Secretion and Derivation of Spirits to all the parts of the Body, and conſequently promote Circulation, and Digeſtion, and raiſe thereby a plentiful Perſpiration, and render the Body lighter; but Fear and Sorrow as they give a quite Contrary Modification to the Solids, and a different Determination of the Spirits, they are always attended with the oppoſite Conſequences. All the other Paſſions alſo as they are more or leſs compounded of theſe, are followed with correſpondent Effects in the Body.

APH. II.

In Fear and Sorrow the lighteſt perſpires, but the heavieſt Matter remains behind; in Anger and Joy there is a good Perſpiration of both.

EXPLANATION.

By Fear and Sorrow the Solids are ſo much ſlackned and injured in their Springs, that Digeſtion is but imperfectly carried on, and therefore the groſſer Parts of the Juices will not be ſufficiently broke for Perſpiration, but be obſtructed and lodged in the Capillaries, although indeed ſome of the finer Parts may get to the Surface and fly off; whereas the contrary Affections ſo differently diſpoſe theſe Inſtruments of Digeſtion and Perſpiration, as to occaſion the Expulſion even of the moſt groſs Matter.

APH. III.

Hence it comes to paſs, that thoſe who are ſubject to Fear and Sorrow, are apt to be troubled with Obſtructions, a Hardneſs in ſome Parts, and to hypocondriacal Affections.

EXPLANATION.

Becauſe that part of the perſpirable Matter which by thoſe Means is retained, is by Degrees thrown upon ſome Parts and collected in ſuch Quantities, as to occaſion manifeſt Tumours and Diſtentions. And as ſuch Obſtructions have been before proved both to give an Acrimony and Sharpneſs to the retained Matter, and alſo to occaſion a greater Derivation of it upon the *Viſcera* where it meets with the leaſt Reſiſtances, it is very likely that by the ſame Cauſes likewiſe, there ſhould all theſe Symptomes ariſe which go commonly under the Name of hypocondriacal Affections, as Diſtentions of the *Præcordia*, Flatulencies, and cholick Pains; and to this Purpoſe it is very remarkable how ſeldom it is that we meet with a Perſon addicted to Sorrow and Melancholy, who has not a conſiderable Share of ſuch Complaints.

APH. IV.

Thoſe who are angry or chearful do not feel much Warineſs in Travelling; becauſe their Bodies eaſily perſpire the groſs Matter; but it happens quite contrary to this when they are troubled with Fear and Sorrow.

EXPLANATION.

This may be upon a double Account, both as in ſuch Perſons there is a more plentiful Afflux of Spirits upon the Solids, and becauſe by the Diverſion of the Thoughts, by ſome pleaſing Images, from what paſſes from without, that Warineſs which otherwiſe would be felt, is not taken Notice of, and thereby does it not occaſion any Uneaſineſs; but Perſons under the contrary Affections, as they are thereby diſpirited, and as their very Thoughts give them a conſiderable Diſturbance, it is from a very ſlight Exerciſe, that they will find a great deal of Warineſs and Diſorder.

APH. V.

The heavy part of the perſpirable Matter, being more than uſually retained in the Body, it will diſpoſe a Perſon to Fear and Sorrow; but the lighter Part being obſtructed, to Anger or Joy.

EXPLANATION.

This is the Reverſe of the firſt *Aphoriſm* of this *Section*, and univerſally it holds good with the Alterations that are brought about in the Body by the Mind, and the Changes which are made in the Affections of the Mind by the different Temperature of the Body, that what is the Cauſe at one time, may be the Conſequence another, and *vice verſâ*; for as Joy will occaſion and promote a more plentiful Secretion of Spirits in the Brain, and give to the whole Body both Strength and Facility of Motion, ſo whatſoever promotes a good briſk Circulation, and keeps the Blood duly fluxile, will alſo raiſe the Mind with more agreeable Impreſſions, and diſpoſe it either to Joy or Anger, as the Perſon happens to be entertained by external Objects. Thus alſo as Fear or Sorrow by checking the Motion of the Spirits, and hindring Circulation and Digeſtion,give a Heavineſs and Sluggiſhneſs to the Juices, and occaſions Obſtructions; ſo whatſoever elſe obſtructs the perſpirable Matter, and induces a *Lentor* in the Blood, the ſame will alſo diſpoſe the Mind to thoſe Uneaſineſſes which ariſe from Sorrow, or Fear. By the lighter part of the perſpirable Matter being retained, and Joy thereupon occaſioned, I cannot underſtand what is meant, unleſs by that Matter be underſtood only ſuch as the animal Spirits or Oil is made up of, and ſuch as always promote, the Elaſticity and Vibrations of the Solids; but then it is very difficult to imagine how this ſhould be retained when much groſſer Parts get out at the Surface and fly off. Here therefore *Sanctorius* ſeems to impoſe upon himſelf, by judging, that becauſe an obſtruction of a ſuperfluous Matter is bad, therefore the Retention of a uſeful Matter is of Service, for although the nervous Fluid or animal Spirits is of ſuch Importance, that the vital Offices cannot be carried on without a due Supply of it, yet a Retention of a greater Quantity than natural, even of theſe very Spirits would be attended with very ill Conſequences.

APH. VI.

Nothing more contributes to a free Reſpiration, than Comfort and Satisfaction of Mind.

EXPLANATION.

As a chearful Diſpoſition very much aſſiſts in the due Performance of the vital Offices, by the means before explained, ſo it cannot but be very ſerviceable more particularly to Reſpiration, becauſe this entirely depends upon thoſe Requiſites which this Temper of Mind has been proved to procure, *viz.* a Strength and Facility of Motion in the Solids, and a briſk Circulation of the Blood,

A P H. VII.

By Fear and Sorrow thoſe Parts which are fulleſt of Moiſture, are moſt apt to be rendered hard.

EXPLANATION.

The different Fluidities of the Blood in the ſeveral Parts of the Body are as its Velocity in each Part; and its Velocity in each Part is as the Force of the contractile Veſſels and its Reſiſtances; where then there is the greateſt Reſiſtance and the weakeſt Contraction, there the Blood will be thickeſt; in thoſe Parts therefore where there is the greateſt Quantity of Fluids in proportion to the Force of the containing Veſſels, there muſt needs be the greateſt Reſiſtances, and therefore from any Cauſe that weakens the Contractions of the Veſſels all over the Body, will the Fluids in that Part ſooner ſtagnate than in any other, and acquire ſuch a Conſiſtence as to give a hardneſs to that Part.

As Grief therefore and Fear do abate of the Force of the Veſſels in Contraction, thoſe Parts where there are the greateſt Collections of Juices, will the ſooneſt ſuffer by a Stagnation, and an Induration of their Fluid Contents; and thus in melancholy Perſons it is very common to find their *Viſcera* Schirrous, but eſpecially the *Spleen*, which naturally is formed for a *Diverticulum* to the Blood, and to check its Velocity in order to the Secretion of ſome Juices needful in the Oeconomy, and therefore is it moſt liable to theſe Conſequences upon any Relaxation, and Abatement of the Force of the Blood.

A P H. VIII.

Sorrow and Fear hinder the Exhalation of the groſs perſpirable Matter; and the Obſtruction of Perſpiration, from what Cauſe ſoever it proceeds, occaſions Fear and Sorrow.

EXPLANATION.

What that *Nexus* or Bond of Union is between the Mind and the animal Fluids, God Almighty only knows; but there is not any one thing better confirmed by Experience, than that they mutually influence one another. See *Explanation* to *Aphoriſm* V. of this *Section.*

APH. IX.

If Grief continues long, it will bring on a coldneſs of the Fleſh, becauſe it hinders the Exhalation of the groſſeſt of the perſpirable matter.

EXPLANATION.

It has already been ſhewn at large under *Aph.*LXVIII.*Sect.*I. that the *natural Heat*, which is what ought to be underſtood by the warmth of the Fleſh, is as the force of the contractile Veſſels; whatſoever therefore leſſens that Force, muſt alſo abate the natural Warmth, and that Grief does this, appears from what has gone before.

APH. X.

From hence it happens, that thoſe Feavers which a Perſon falls into after much Grief, diſcover themſelves in cold Sweats, and oftentimes prove Mortal.

EXPLANATION.

Grief by its continuance, keeps the Solids ſo long in a ſtate of Relaxation, that the Orifices of the ſecretory Glands, lye ſo far open, as to let thorough even that Balſamick Juice which is diſpenſed to the ſeveral parts of the Body for their Acretion and Nouriſhment, as well as for their Lubrication and the Maintenance of their Springs; by which means the

Body is robbed of its moſt neceſſary Juices, which, by their aptitude to Coheſion, and the ſmall *Momentum* or Force with which they are brought to the ſecretory Orifices, as ſoon as they are thruſt thorough, they ſtick to and lodge upon the Skin, and occaſion that greaſy Clamminеſs, which is commonly called a cold Sweat.

And from hence may be deduced a conſiderable confirmation of what has been already advanced, in the Digreſſion concerning an *anmial Fibre*,, about the animal Spirits; for upon all Relaxations, when this Oily or Balſamick Juice is waſted in the manner above mentioned, there is immediately felt a very great decay of Strength and Vigour; and as a Perſon commonly expreſſes himſelf upon ſuch Occaſions, he is quite faint and diſpirited: which I cannot but think is a very manifeſt Proof that thoſe Spirits by which we are made chearful and ready for Motion, are nothing elſe than the Juice here ſpoke of, which when it is ſupplied to the Solids in due quantity, gives ſuch a modification to them, as readily enables them for the performance of their reſpective Offices; but when its Supply is either cut off, or when its Waſte is too great for its Supply by Exerciſe or an Enlargement of the excretory Pores, then they grow diſſabled and unfit for Action.

The reaſon why Feavers are ſo dangerous which happen upon ſuch a feeble Diſpoſition of the Solids is, becauſe the Conſtitution is not then able, either to digeſt and wear away any obſtructed matter, by any of the natural Evacuations, or to continue their Contractions until any morbid matter, ariſing from the fermentative Motions of the Fluids, is expelled, either by ſome natural Diſcharge, or by an Abſceſs.

DIGRESSION IV.

Of the Difference between Inflammatory and Nervous Feavers.

And here it may not be amiſs to take notice of the difference between an inflammatory Feaver, and a nervous Feaver, or as People commonly word it, a Feaver of the Blood, and a Feaver of the Spirits.

How a Feaver is raiſed by an encreaſed quantity of Blood, has been particularly explained under *Aph.* XLVI. *Sect.* I and ſuch a Feaver is properly call'd Inflammatory, becauſe it is attended with ſuch a prodigious Heat, as is little leſs than that of boiling Water; the natural Moiſtures are exhaled in ſuch quantities as to occaſion a Dryneſs upon the Surface, and wheresſoever they have room to fly off, and more eſpecially from the Mouth, ſo much as to occaſion an inſatiable Thirſt; the Colour is wonderfully raiſed, and the Eyes ſeem to ſparkle with Fire. It either goes off by an encreaſe of ſome Evacuation, generally by that of the Skin, or continues until the Solids are ſo overſtrained and defrauded of their due Moiſtures, as not to be able any longer to continue their Contractions, and then ends in Death. Herein all *Stimuli*, and whatſoever has any tendency to encreaſe the celerity of the Blood, are fatal; but nothing is ſo deſtructive as Bliſtering, and ſpirituous Juleps, as was before obſerved in the *Second Digreſſion* concerning *Agues*, notwithſtanding the common Practice runs very much this way; and although ſome Perſons have advanced Theories, on purpoſe to eſtabliſh it, the moſt labour'd, of which, is that of Dr. *Cockburn*, about the Operation of *Cantharides*, and the manner by which they are ſerviceable in Feavers; but the fallacy of them is very manifeſt both from Reaſon and Experience, as may be eaſily made appear to any conſiderate Enquirer; who likewiſe may find ſomething very rational upon this Subject in *Baglivi*'s Diſſertation *de Uſu & Abuſu Veſicantium.* But to return, almoſt any evacuation in this kind of Feaver, eſpecially if timely procured, is of Service; but that of the cuticular Diſcharges, is generally of the greateſt Advantage; for if it can be plentifully raiſed, it hardly ever fails either of quite terminating the Feaver; or bringing it to an Intermiſſion. This moſt commonly attacks young People, and thoſe that are moſt Robuſt and Sanguine. It generally has its Cauſe in the diminution of ſome of the natural Diſcharges, by which although the Blood at firſt is the ſame in quality, yet by the encreaſe of its Quantity only, will it raiſe a Feaver, as above cited.

But the latter, *viz.* a nervous Feaver, appears in a very different Shape, ariſes from very different Cauſes, and requires a very different Management; and is not unjuſtly called a Feaver of the Spirits, becauſe the Patient from the firſt Attack, is Pale, Feeble, and Sluggiſh; has a low ſhort Pulſe, feels rather Cooler than Natural; and has little or no Thirſt. All theſe Symptoms will go off at firſt ſometimes for a few Hours, and the Spirits ſeem to return, but they ſoon appear again, and frequently with ſlight Rigours and Shiverings, whereby a Phyſician not well appriſed hereof, is apt to be drawn into a Miſtake, and taking it only for an *Intermittent*, fall upon immediately with the never failing *Bark*: but after a few ſhifting and deluſive Appearances, the Patient at laſt is tyed down to his Bed, and grows ſo ſtupid, as to be ſenſible but very little of his Danger, or of what paſſes about him; he begins to fumble with his Hands, ſtammers with his Tongue, if he is not quite Speechleſs, and at laſt has very little Appearances of Life beſides a general Convulſion of the whole nervous Syſtem, but eſpecially of the Stomach, where they are diſperſed in greateſt numbers; which occaſions Hiccups, and if Death does not cloſe the tragical Scene, it looks more like a Reſurrection than a Recovery. Towards the latter end ſometimes appear ſpots under the Skin, which the more florid and lively they are, it is the better Symptom, but worſe where livid or dusky. It is common to fall into a Looſneſs, and have a diſcharge of very black fætid Stools, and ſometimes alſo of a Urine of the ſame Colour. The ſenſatory Organs frequently looſe their Offices, inſomuch that they have not been able to diſcern broad day light, nor to hear a Perſon ſpeak very loud: the latter Symptom has been obſerved to be almoſt an infallible ſign of a Recovery, although the reaſon of it I confeſs at preſent lies out of my reach. But whenſoever there is a Recovery, there ſeldom is any viſible *Criſis*, but all the Symptoms as they inſenſibly came on, ſo they generally go off; and this further is alſo very remarkable, that a great many Perſons after their Recovery from theſe kind of Feavers, have not under a long time, if ever, regained that quickneſs of Senſe and ſtrength of Mind, as they before enjoyed.

It is very certain, that an Inflammatory Feaver very often changes into one of this latter kind; which happens when the Solids are able to continue their Motions ſo long, that the overcharge of Blood is wore away, but by that time they are ſo far over ſtrained, and injured in their Springs, as not to be able to carry on the Fluids with ſuch a Celerity, as is requiſite to prevent their falling into Fermentation and Putrefaction; and therefore as that Heat goes off which was occaſioned by an encreaſed Quantity and Velocity, another ariſes, tho' much more languid, from its inteſtine and fermentative Agitation. And as the Feaver thus changes its ſhape, ſo ought alſo its Intentions of Cure to be differently regarded.

As the former kind generally ariſes from a diminution of ſome of the Evacuations, and an overcharge of Blood, ſo this latter moſt commonly has its Riſe, from an Exceſs in ſome of the Diſcharges, from hard Exerciſes, from too ſparing a Diet, from long trouble of Mind, from an immoderate uſe of Venery, and frequently from Epidemical Contagions: the efficacy of all which things upon the Conſtitution, make it very plain that the immediate cauſe of this Feaver, is in the diſtemperature of the nervous Fluid, either as to its Quality or Quantity; whereby it is rendred unfit to give that Elaſticity to the Solids, as is neceſſary for their Contractions, and the carrying on the Animal Fluids with their due Velocities; whereby, as was ſaid before, they fall into Inteſtine and Fermentative Motions.

That the remote Cauſes are frequently in the Conſtitution of the Air, cannot be queſtioned by thoſe who conſider the many Inſtances wherein this Deſeaſe has in one Seaſon, and in the ſame place ſwept away vaſt numbers, all of them no farther differing in their Symptoms, than what may readily be accounted for, from the difference of thoſe Conſtitutions which have been ſeized with it. But theſe have moſt generally happened after long ſultry Weather; by which the ſpring of the Air is much broke, whereby that part of it which mixes with the Blood, is not ſufficient to raiſe its Globules, and keep them from running into mutual Contacts and Coheſions, and alſo by keeping the cutaneous Pores long open, there is ſuch a waſte made of the nervous Juices, as to damage the Solids in their Contractions, and induce a general Relaxation; eſpecially if a damp moiſt Air follows upon ſuch Heat.

Any Evacuation ſo as to cut off the ſupply of the nervous Juice, cannot alſo but be attended with the ſame Conſequences, for the Reaſons frequently given under the *Aphoriſms* of the foregoing *Sections* ; the *Lancet* therefore, (with which ſome are ſo very buſy whenever they get any thing to deal with that can be called a Feaver,) in theſe Caſes ought to be avoided as Death it ſelf ; as likewiſe all thoſe *Catharticks*, thoſe Friends to Nature, with which ſome Enthuſiaſts pretend to purge off the peccant Humours. And to this purpoſe it is very remarkable, that all thoſe Feavers which fall in upon, or ſooner after, the Courſes which are generally gone thorough in Venereal Caſes, eſpecially *Gonorrhæa's*, are of this kind ; for by frequent Purging, and Evacuating ſeveral ways, the Solids in time come to be robbed of their proper Supplies, and thereby for want of their uſual Springs, are apt to let the Blood fall into inteſtine Motions, and run into preternatural Coheſions. The Medicines indeed herein frequently made uſe of, do not bring about this ill Diſpoſition only as they are purgative, but alſo as they at the ſame time give a numbneſs or inſenſibility to the Solids, as it is very well known that *Mercurials* will do.

By unuſual Evacuation by any of the ſenſible Diſcharges, not only the Solids are defrauded of their proper Moiſtures, but alſo by its Diverſion of the perſpirable Matter for ſome time together, or leſſening at leaſt the Quantity which ought to paſs the Skin, in proportion to the encreaſe of any other Diſcharge, the cutaneous Pores will be ſo much leſſened in their Capacities, as with much the greater difficulty to be brought to admit of ſuch a Diſcharge thorough them, as is neceſſary for the Termination of a Feaver by its moſt natural *Criſis*. Of this I have had an uncommon Inſtance very much to my own Coſt, who about Two Years ſince, all at once left off Claret and ſtale ſtrong Beer, out of a fondneſs for a home brewed Pale Ale, which by drinking it daily, and that ſomething new, altered the Evacuations by Stool from about once in Twenty Four Hours, to Six or Seven Times. But in about Six Weeks I inſenſibly dropped into one of theſe Feavers, attended with ſuch a *Delirium* or rather Stupefaction, as not to be able ſince to recollect the leaſt Remembrance of any thing that paſſed for near Three Weeks together, although in that Time I was almoſt flead with Bliſters, and had one laid all over my Head a whole Week ; nay further, what is moſt of all ſtrange to me, about a Week before I was ſenſibly out of order, there were ſome Affairs I went thorough, to me of the greateſt Importance, which never ſince can I remember any thing of, and ſhould very hardly be brought to believe, were it not apparent by the moſt convincing Evidences ; and yet the very Perſons concerned with me in thoſe Affairs, tell me that they diſcerned no manner of Diſorder in my Head, nor do ſome Matters there tranſacted, diſcover any ſuch thing.

Whatſoever brings this melancholy Scene to my Remembrance, does alſo always remind me of what I owe to the Advice of a Phyſician, who is now by all confeſs'd to be the greateſt Ornament of his Profeſſion ; for (ſo unexpected ſometimes are the conſequences of good Deſigns) without it, or a Miracle, neither had this been added to the number of Books, with which the World is already encumbred, or had his generous Goodneſs the uneaſineſs of meeting with ſo publick an Acknowledgment.

If then there is any thing in all this, as I believe but very few who have any Notions of this matter will queſtion, what Hazards do they run, who, under a Notion of cleanſing the Blood, and purging off Scorbutick Humours, are almoſt continually drenching themſelves with Medicinal Drinks, ſuch as Scurvy Graſs, *Butler*'s, and Colledge Ales? in the tipling of which ſome ſeem wonderfully to bleſs themſelves, as having found out a much more happy way to clear themſelves from ill Humours, than by the nauſeous Doſes of an extorting Apothecary ; but let ſuch aſſure themſelves that thereby they are purſuing their own Deſtruction, for keeping the Body in ſuch a lax State, entirely ruins the Offices of the cutaneous Pores, the benefit of which diſcharge they cannot but frequently happen to ſtand in need of, and likewiſe does it in time procure ſuch a general Imbecillity in the Solids, that they will be but in an ill Condition to weather the ſeveral Changes and Accidents of Life, eſpecially when attacked by Feavers, or any Diſtemper of Moment. Drinkers of the Purging Waters, and particularly thoſe who doſe themſelves with that notorious Cheat, commonly called *Epſom* Salt, likewiſe lye liable to the ſame ill Conſequences ; for a long uſe of them will ſo far deſtroy the beſt Conſtitution in the World, that if it does not immediately bring on a dangerous Feaver, of the kind that we are now ſpeaking, it never fails of being followed by ſo many Shocks and Diſorders, as cannot but the ſooner wear it out, and ſhorten both the Enjoyments of Health and Life.

This kind of Feaver then which is commonly called Nervous, or a Feaver of the Spirits, ariſes from a *Fermentation of the Animal Fluids*, ſuch a *Fermentation* I mean, as is explained in the firſt *Digreſſion*, which ariſes from the weakneſs of the contracting Veſſels, whereby they are not able to give that Motion to the component Parts of the Fluids, as is neceſſary to prevent their running into Preternatural Coheſions; that is, the Force impreſſed upon them by the contractile Veſſels, is not ſo great as that attractive Power by which they are drawn into mutual Contacts with one another, and therefore at all ſuch Times do they coaleſce into Particles of different Bulks and Diſpoſitions, than what are neceſſary and uſeful for the Animal Machine, and from what the Secretory Organs are naturally conſtituted to ſecern. And this is the Feaver, which may juſtly be called Putred, becauſe there is really ſuch a Change brought about in ſome or all of the Animal Fluids, as is truly a Putrefaction or Corruption. Of this kind alſo I take thoſe to be which are called *Malignant*; although I know but little uſe of the Diſtinction, unleſs it be to thoſe who have got a Knack of ſhowing their Learning more by their Knowledge of Words, than of Things.

And for a conſiderable Confirmation that this is the ſtate of the Animal Fluids, in this Diſtemper, I cannot but think it will go a great way, when we conſider, what black fœtid Stools often happen after it has ſet in ſome time, or for want of them if the Patient recovers, thoſe Abſceſſes which frequently ariſe, and diſcharge a very ſtinking Matter of the ſame Colour; for theſe are plainly nothing elſe than a Deſpumation of the Juices, which during their Fermentation, raiſed and threw off either by the Glands of the Inteſtines, or by an Abceſs ſuch Particles as by their peculiar Figures and Gravities were not fitted to make a part of, and continue their Circulations with the remaining Maſs, as it happens to all fermented Liquors whatſoever. But when the contractile Force of the Solids, cannot be maintained until this Depuration and Diſcharge is made, Death muſt of neceſſity enſue. Sometimes indeed this Matter, which truly may be called the morbid or peccant Matter, is thrown upon the Surface, and appears under the Skin in ſpots of various Colours, as Red and Florid, Dusky, Livid, and ſometimes alſo quite Black; and as this Matter is chiefly raiſed from the grumous parts of the Blood, which for want of due Agitation, ferments, and puts on new Shapes and Properties; ſo the farther it degegenerates from its natural State, the more it loſes of its natural Colour, and like Blood drawn out of a Vein and ſtagnant in a Porringer, will, the longer it ſtands, and the nearer it approaches to Putrefaction, loſe ſtill more and more of its natural Colour, and change at laſt into Black; ſo may pretty certain Prognoſticks be taken of the condition of the Patient from theſe Spots.

That Perſons in this Caſe are ſo ſtupid, and at laſt convulſed, is not much of a wonder, becauſe the Cauſe of it conſiſts ſo much in a previous diminution of Spirits, and a general Flaccidity of the Fibres, that after the Diſtemper has ſet in ſome time and the conſtitution of the Blood ſo deſtroyed, as not to afford any Recruits, it is almoſt impoſſible it ſhould be otherwiſe; for hereby the Nerves are not in a condition to be ſo affected by external Objects, and to give ſuch a Reflux of Spirits, as is neceſſary to convey to the common *Senſorium* any notices about them; whence the Stupidity; and by the extraordinary waſte of this Fluid, ſome of the *Fibrile Machinulæ*, may be duly moiſtened to perform their Motions, when others are ſo dryed, as not to be under any capacity of Diſtraction, and therefore muſt their Contractions be performed very irregularly, and inſtead of keeping up thoſe ſteady Vibrations which they ought, fall into diſorderly Starts and Ketches, whence the Convulſions.

The whole then being taken in this View, it very plainly appears, that the moſt likely way to ſave the Patient in theſe Caſes is, by keeping up the Contractions and Vibrations of the Solids by all the Means poſſible, and to haſten forward as much as can be the depuration of the Juices, and the diſcharge of that peccant Matter or Spume which is raiſed thereupon by ſome of the Emunctories, which peccant Matter ſometimes is ſound to be but very little in quantity, although by the expulſion of it, there is immediately a manifeſt Recovery, inſomuch frequently to be not eaſily perceived by what Diſcharge it goes off. This Matter alſo appears to be in every Perſon ſo peculiarly modifyed, as not to admit of its Expulſion, equally by any of the Evacuations, but in ſome it is thrown off one way, and in others by different paſſages; and this is the reaſon why it is to no purpoſe to attempt to draw it off by any of the Evacuations, before it is found by which Nature her ſelf is diſpoſed to expel it; and agreeable to this, Experience inſtructs us, that one Stool ſometimes goes further than twenty times the ſame quantity, thrown off by any other Diſcharge; ſometimes this matter comes away by Urine, ſometimes by Sweat, and ſometimes inſenſibly. But there is one Secretion in this Caſe, which I have known to be enlarged upon a Recovery, and which I cannot but think has anſwered the ſame End, and that is by the Ears; which will not appear ſtrange from the ſmallneſs of the Quantity, which is capable of being thrown off this way, to any one who conſiders by what minute Agents the Animal Fluids may very ſtrangely be diſordered: and it may perhaps be no unreaſonable Conjecture, that the protruſion of this Matter upon that Organ, is the true Cauſe of the Deafneſs before taken notice of in this Diſtemper, and that therefore it is ſo good a Symptom, as it is a ſign that the Blood is able to depurate and rid it ſelf of the peccant Matter.

It may be owing to the want of this Diſtinction, between this kind of Feaver, and that which is Inflammatory, that Dr. *Pitcairne*'s Theory, *De Curatione Febrium* before taken notice of, is not of ſo much Service as it otherwiſe might have been; for it can hardly be imagined that the Dr. thought it applicable to all kinds of Feavers; but only to ſuch as without any previous Indiſpoſition, either in the Conſtitution of the Fluids, or in the Elaſticity of the Solids, ariſe immediately from an encreaſe of the Bloods quantity, upon the Diminution of any of the natural Diſcharges, but eſpecially of that, by inſenſible Perſpiration. For there it is plain, that the Quantity drawn off, if it be in time, does the Buſineſs, by reſtoring again the *Equilibrium*, between the Solids and the Fluids, and therefore that it is beſt done by thoſe Evacuations as will admit of the greateſt enlargement; but here it is not the Quantity to be diſcharged that ſignifies any thing, but the Nature and Quality of it; upon which account, as was ſaid before, it is not equally to be drawn off any way, but only by ſome particular Evacuation, by which it is naturally fitted to paſs off; although even this it ſelf cannot ſometimes be done, and then it is that we find it collected into an Abſceſs.

But as the greateſt Difficulty lyes in keeping up the Pulſations of the Solids, until all this is brought about, ſo the greateſt Effort muſt be made to this purpoſe; and this is to be done both by the application of *Stimuli* externally, and by furniſhing the Solids as much as poſſible with freſh Supplies, from generous good Cordials, and Volatile Spirits. In this Caſe therefore it is that the *Volatile Alchali* of the Shops have their place, and not only as they ſerve to keep up the

Vibrations of the Solids, but alſo as by their Lightneſs and Action they help to preſerve the agitative Motion of the Fluids, and in a great Meaſure prevent their running into preternatural Coheſions. Thoſe called Perfumes alſo have herein been found of Service, although at other times perhaps they might have proved very offenſive and prejudicial, as Musk, Ambergreaſe, and the like. But for anſwering the other Intention, of keeping up the Contractions of the Solids by ſharp *Stimuli*, we muſt be beholden to the *Cantharides*; for herein it is that they are not only uſeful but neceſſary. Thoſe Gentlemen therefore who are ſo fond of Bliſtering, may here indulge their Opinions without Hazard, for the only ill Conſequences they can be attended with in this Caſe, is a Mortification upon the Part, and even that ſometimes in prudent Hands may be turned to an Advantage. What is diſcharged by theſe, I cannot conceive to be of any great Importance, the Service they do, is by ſpurring the Solids, and keeping up their Pulſations when there is little elſe to do it; and alſo by a great many ſubtile active Parts, which get from them into the Blood, are the Fluids more briskly moved, and thoſe Parts which have already run into preternatural Coheſions, are, as by the Volatile Alchali's before ſpoke of, the oftner ſtruck upon, and thruſt forward, until by ſome Out-let or other, they are expelled the whole Maſs.

APH. XI.

That Acrimony of the perſpirable Matter which is obſtructed by long Sorrow, may with Advantage be taken off by Chearfulneſs: for pleaſing Humours are thereby diffuſed throughout the Body, and thereby both its Weight and Sharpneſs is removed.

EXPLANATION.

Any preternatural Acrimony of the Juices, which has been contracted by their want of due Motion and Attrition, cannot but be taken away by any means that encreaſe the Force and Vibrations of the Solids; as Grief therefore by weakning that Force occaſions this Diſorder, ſo Chearfulneſs by reſtoring it again, proves a Remedy. By pleaſant Humours being diffuſed thorough the Body upon Joy, I can underſtand no more, than that Joy gives ſuch particular Modifications to the Nerves, as facilitates the Derivation of that Juice to them, which gives them their Springs, and enables them with the more Eaſe, to diſcharge their ſeveral Offices; the Conſequences of which cannot but be a better Digeſtion, and a more plentiful Perſpiration.

APH. XII.

Anger and Hope remove Fear, and Joy takes away Sorrow: for a Paſſion of the Mind is not to be conquered by Medicine, but by ſome contrary Paſſion; for Contraries are under the ſame *Genus*.

EXPLANATION.

When any Paſſion is ſuddenly raiſed by ſome external Cauſe, it is not expected that a Perſon ſhould take Phyſick to get rid of it, nor is it poſſible to aſſign the Inſtruments and Means by which any Change therein can be effected. So far only of the Affections of the Mind, does therefore concern a Phyſitian, as can by conſtant Obſervation be found to be under the Influences of the particular Tempers of the Conſtitution; as where by Experience it is found, that any particular Diſorder in the Blood, in time, alſo influences the Faculties and Powers of the Mind, and diſpoſes it either to Anger, Melancholy, or the like, then there appears ſome good Grounds for calling in the aſſiſtances of Medicine, whereby to rectifie ſuch a Diſtemperature of the Blood. As it appears alſo, that ſome Paſſions of the Mind will inſenſibly bring about Diſorders in the Conſtitution, ſo to prevent ſuch an ill Conſequence, it may frequently be of Service, to excite, if poſſible, ſome contrary Affections; but *Sanctorius*'s Reaſon for it, becauſe Contraries are under the ſame *Genus*, it is to be feared, but few will be the better for.

APH. XIII.

It does not imply a Contradiction, that the retained perſpirable Matter of Melancholy Perſons is Cold, and at the ſame time Sharp or Hot; for ſo is the Liver of Hydropicks in Feavers; to wit, Cold in reſpect of the natural Heat, but Hot with regard to that which is adventitious.

EXPLANATION.

It is here neceſſary to diſtinguiſh well between what is meant by the *natural Heat*, and that which he calls *Adventitious*; the Firſt, as before explained, is, that which ariſes from the Motions and Attritions of the Humours; where therefore there happens an overcharge of Fluids, by means of an imperfect Perſpiration, as is commonly the Caſe in Melancholy Perſons, the Solids will not be able to give them ſufficient Agitation, whereby there will be a decreaſe of the natural Heat; and ſome of the Juices alſo by the ſame Means may acquire an Acrimony or Sharpneſs. But as in a little time, ſuch obſtructed Humours will begin to putrify, and ſo by a fermentative Motion, put on a preternatural Heat; they may with regard to that, be ſaid to be Hot. And this is the Caſe with the Liver of Hydropicks, or any part where there is ſo great a collection of Humours, as to occaſion a Stagnation, and a Tendency to Putrefaction.

APH. XIV.

Diſeaſes that ariſe from Melancholy, and from a foul Air, agree in this, that they immediately proceed from the groſſneſs of the obſtructed perſpirable Matter: for Grief does intrinſically prevent its Diſcharge, and a foul Air, extrinſically.

EXPLANATION.

The Reaſon of their Agreement herein, ſeems to be but indifferently founded. It is plain, that both of theſe Cauſes hinder Perſpiration; a foul Air by hanging upon the Skin, and obſtructing the cutaneous Paſſages, and Grief by preventing a ſufficient Derivation of nervous Fluids, to the ſeveral Organs, to keep up their Contractions ſtrong enough for a due Digeſtion. And as the former alſo will in time ſupple the Fibres, and render them too lax, ſo in this they may agree, that they both injure their Vibrations, and thereby are attended with the ſame conſequences of Indigeſtion, and an overcharge of Juices; but the manner by which this is brought about, by both, is very different, upon other Accounts, as well as one being from within, and the other outward.

APH. XV.

They who go to Bed with Grief, perſpire thereby leſs in the Night, and the following Day their Bodies will be found heavier than uſual.

EXPLANATION.

Becauſe during Sleep, there is made the moſt plentiful Perſpiration; what Cauſe therefore ſoever would do it at another time, will with the more certainty, occaſion it at going to Bed, becauſe the Pores are thereby contracted, when by the Relaxation of the Solids, they ought to be enlarged. How Grief does this, has been already explained.

APH. XVI.

In Venereous Deſires, the groſſer part of the perſpirable Matter will be obſtructed by Grief, which by the exhalation of the thinner part, will ſtill grow more Thick and Cold. If it be collected together, it will occaſion an inſenſible Chillineſs in the Head, and a Palpitation in the Heart, or in ſome other Members, very difficult to be cured.

EXPLANATION.

Intenſe Thought, eſpecially when attended with great Uneaſineſs, as it hinders the vibrating Motions of the Solids, cannot but very much obſtruct the Paſſage, and Exhalation of the perſpirable Matter; only the thinner Parts therefore will be able to get off, and thereby diſpoſe the retained Matter by its Groſſneſs, to occaſion the greater Obſtructions. The Conſequences of which, as the Fibres will thereby be much defrauded of their proper recruits of Spirits, will be a Weakneſs and an imperfect Performance of the Animal Functions, eſpecially in thoſe Parts, which by their Offices, have upon them the greateſt Share, as in thoſe of the Brain and Heart.

APH. XVII.

Melancholy is removed two ways, either by a free Perſpiration, or by ſome continued Chearfulneſs of Mind.

EXPLANATION.

This, as well as moſt of the following, by attending to what has been already explained, (that Grief hinders Perſpiration, and that a free Perſpiration will likewiſe remove Grief, if it can be procured; as alſo that Joy promotes Perſpiration, and that Perſpiration again tends to Chearfulneſs) will appear to be little elſe than Repetitions, and therefore any Notes upon them will not be wanted.

A P H. XVIII.

If after Grief, the Body happens to be lighter, than after Joy, it muſt be either through a ſcarcity of Food, or by its being more than uſually Perſpirable.

A P H. XIX.

Chearfulneſs, from whatſoever Cauſe, opens the Paſſages, and makes a free Perſpiration.

A P H. XX.

If, after Anger, Joy immediately follows, or the contrary, allowing the ſame proportion of Food, Bodies will the next day be lighter, than if Anger or Joy alone had continued.

EXPLANATION.

Becauſe a continuance of the ſame Paſſion, by keeping the Solids under the ſame Modifications for ſome time, will not ſo much favour Perſpiration, as a ſhifting them often by contrary Paſſions.

A P H. XXI.

As ſome great Pleaſure is taken away by a ſmall ejection of *Semen* ; ſo all immoderate Paſſions of the Mind, may be removed by ſome evacuation of the perſpirable Matter.

APH. XXII.

Fear and Sorrow, as it appears from *Staticks*, are removed by a ſubſtraction of the groſſer perſpirable Matter: but Anger and Joy, by that of the thinner.

APH. XXIII.

If any one without manifeſt Cauſe, finds himſelf Chearful, it is occaſioned by an enlarged Perſpiration, and that Body the following Day will be lighter.

APH. XXIV.

Moderate Joy inſenſibly evacuates what is ſuperfluous: but Immoderate, what is alſo uſeful.

EXPLANATION.

This will not ſeem difficult, when it is conſidered what has been before ſaid, about Exerciſe.

APH. XXV.

Moderate Joy aſſiſts Concoction, for Nature diſengaged from what is Superfluous, will the better perform her Functions.

APH. XXVI.

Sudden Joy is more hurtful, than what is expected: for it not only promotes the Exhalation of the Excrements of the third Concoction, but alſo of the Animal Spirits; but that which is looked for, only of the Excrements.

EXPLANATION.

By Excrements of the third Concoction, is meant that perſpirable Matter, which ſudden Joy, like a Convulſion, forces out, but with it alſo, ſome of the Nervous Juices, which cannot be ſpared without Injury.

A P H. XXVII.

Joy and Anger carry off what makes the Body both more Heavy and more Light ; but Grief and Fear, only that which would make it more Light ; and leaves behind what makes it heavier.

EXPLANATION.

Of the former this is to be underſtood only where they are in Exceſs, elſe it contradicts the foregoing.

A P H. XXVIII.

A continuance of Joy ſeveral days together, would hinder Sleep, and ſink the Strength.

EXPLANATION.

Becauſe it would by a long continuance, give ſuch a Straitneſs and Rigidity to the Nerves, as would prevent thoſe Relaxations which are neceſſary to Sleep, and alſo for ſuch derivations of Spirits to the Solids, as are needful to keep up the uſual Vigour.

A P H.

APH. XXIX.

If any one after immoderate Joy perceives himſelf lighter, it does not chiefly ariſe from a total Perſpiration, but only from that of the Heart and Brain, where what is evacuated, is but little in Bulk, but of great Efficacy.

EXPLANATION.

This lies entirely beyond the reach of my Underſtanding.

APH. XXX.

Meats which promote Perſpiration, bring Joy, but thoſe which obſtruct it, Sorrow.

APH. XXXI.

Parſley, and other Openers, occaſion Joy: Pulſe, fat Meats, and ſuch things as incraſſate, and ſoon fill up the Paſſages, induce Sorrow.

APH. XXXII.

If the Paſſages are emptied, and then ſuddenly filled; *Hippocrates* has rightly obſerved ill Paſſions will ariſe.

A P H. XXXIII.

Where Anger predominates, immoderate Exerciſe is very hurtful; for ſoon the Paſſages will be empty, and will with Violence be again filled; whence *Hippocrates* forbids Wraſtling, and Frictions to Cholerick Perſons.

EXPLANATION.

Anger keeps the Fibres too dry and criſpy, by too much exciting their Vibrations; any Exerciſe therefore with ſuch Perſons, will encreaſe that Ill Diſpoſition, by ſtill making a greater waſt of the Natural Moiſtures.

A P H. XXXIV.

In Perſons who Exerciſe neither Body nor Mind, the Paſſages are not emptied, nor are their any bad Paſſions contracted.

EXPLANATION.

But it is to be feared, that much worſe Inconveniences will enſue in the Conſtitution.

A P H. XXXV.

A Body at reſt, does Perſpire more by the violent Exerciſe of the Mind, than if the Mind was at reſt, and the Body violently moved.

EXPLANATION.

This will admit of a great deal of diſpute, and in very few Inſtances will be found true.

A P H. XXXVI.

A Change of the Body, makes a more laſting Alteration of the Mind, than of the Body it ſelf.

A P H. XXXVII.

Paſſions of the Mind, are converſant about Internal Subjects, which move more than they are moved; becauſe they are like the *Semen* of great Efficacy, although little in Bulk; and according to their Diſpoſitions, are the cauſes of Perſpiration, or of Weight or Lightneſs.

EXPLANATION.

This is alſo too Metaphyſical to be explained upon ſuch Principles, as have herein been made uſe of.

A P H. XXXVIII.

Bodies which Perſpire more than uſual, not by Exerciſe, but by ſome violent Paſſion, are with the greateſt Difficulty, brought to their wonted healthful Perſpiration.

A P H. XXXIX.

Too much Exerciſe of the Mind, is more injurious than that of the Body.

EXPLANATION.

Becauſe the Exerciſe of the Mind expends the fineſt, and moſt uſeful Parts of the nervous Fluid.

A P H. XL.

The Body would pine, and be deſtroyed by Idleneſs, was it not for the Exerciſe of the Mind; but not on the contrary.

EXPLANATION.

Where due Bodily Exerciſe is not uſed, that of the Mind will not be long ſufficient, to keep it from falling into ſome bad Diſorders.

APH. XLI.

Violent Motion of the Mind, differs from violent Motion of the Body; this is removed by Reſt and Sleep; but the former by neither.

APH. XLII.

They that are covetous ought not to Game; becauſe if they always win, through exceſs of Joy, they will not ſleep at Night, and at length will looſe the Benefit of Perſpiration.

APH. XLIII.

A moderate conqueſt is more healthful, than one that is more Glorious.

APH. XLIV.

Study which varies the Paſſions is better bore, than than that which keeps them the ſame; becauſe it makes Perſpiration more moderate and more wholeſome.

EXPLANATION.

It was before taken Notice, that a frequent ſhifting the Modifications, and Vibrations of the Solids, is much more advantageous, than keeping them continually in the ſame Tone, and therefore a Change of Paſſions, cannot but be much better than the ſame continued.

APH. XLV.

Study without any one Paſſion will hardly endure an Hour, with one only, hardly four Hours; with a Change of them, as at Dice (in which is felt ſometimes the Hopes of Winning, and at others the fear of Looſing) it may continue Night and Day.

A P H. XLVI.

In all Study, continued Sadneſs deſtroys the Good Conſtitution of the Heart; aud exceſs of Joy hinders Sleep, for too much of any thing is an Enemy to Nature.

A P H. XLVII.

They who are ſometimes merry, ſometimes ſad, ſometimes angry, and ſometimes fearful, enjoy a more healthful Perſpiration, then they who continue in one Affection, although a good one.

A P H. XLVIII.

Joy aſſiſts the Diaſtole and Syſtole of the Heart: But Greif and Melancholly renders them more difficult.

EXPLANATION.

There ſeems to be ſo little variety, in the Senſe of moſt of the Aphoriſms of this *Section*, that if what has been ſaid at the Beginning be attended to, an Explanation of a few of them, may ſerve for all, and therefore to avoid Repetition, I have given moſt of them without any Notes.

FINIS.

THE INDEX TO THE

Sections and Explanations.

A.

Sect. Aph.

ABſolute Gravity, *what* 1 26
Abſolute Weight *of the Body*, *what* 1 29
Apparrel *too thick, how it hinders* Perſp. 1 55
Air *Cold and Moiſt, how it hinders* Perſp. 1 67
Warm, how it promotes Perſp. 2 3
Several ways to know its Weight 2 4
Cold, if it Strengthens the Fibres, *cannot be hurtful* 2 7
Cold and Moiſt, how injurious 2 8
Moderately cool upon thoſe who are Hot, more injurious than when exceſſive Cold 2 12
Cool after Supper, how bad 2 17
The Conſequences of its ſudden Changes 2 18
In the City *why worſe than in the* Country 2 61
Abſolute Heat, *what* 2 27
Æquinox, *from the Autumnal to the middle of Winter* Perſp. *decreaſes, and thence to the vernal Æq. encreaſes* 2 41
Autumn, *how Unhealthful* 2 42
And what will prevent it 2 43
What Courſes of Phyſick then beſt S. 2 A. 48, 49,

Acirmony

Sect. Aph.
Acrimony, *of the* Perſpirable Matter, *what its Conſequence* 2 51
Activity, *a ſign of good* Perſp. 4 42
Act *of* Venery *long continued, its Conſequences* 6 12
Amble, *the moſt wholeſome Riding Pace* 5 27
Agitation *of the* Body *in* Coition, *how hurtful* 6 39
Anger, *aſſiſts* Perſpiration 7 1
Prevents Wearineſs *in* Exerciſe 7 4
Alliment *moſt perſpirable, moſt conducive to* Joy 7 30
What produces Melancholy 7 31

B.

BUlk, *how conducive to* Strength S. 1 A. 35,36,37
How conducive to Health 1 93
Blood *viſcid, why lodged in the* Cappillaries 1 95
Buboes, *in the* Plague, *whence* 1 127
Not from an Aduſtion *of* Humours 1 131
If they diſcharge the infectious Matter it is good, but if otherwiſe, not 1 133
Baths *Warm, their Effects* 2 2
Bliſters, *when hurtful* 2 16
Phlebotomy, *why beſt in* Autumn 2 45
Body, *better to decreaſe than increaſe in Bulk* 2 58
Lighteſt in a Morn. upon a double Account 4 56
Bed *Strange, hinders* Perſpiration 4 25
Occaſions Dreams 4 26
How long needful to Lye in 5 11
Brain, *how it Sympathiſes with the* Stomach 4 40
Briskneſs, *a ſign of good* Perſpiration 4 42
Boat Carriage, *not ſo healthful as Walking* 5 28
Unleſs long continued 5 29
Beauty, *injured by much Sweating* 5 36

C. Sect. Aph.

Cold *external, tho' ſmall in Sleep hinders* Perſp. 1 50
Why it promotes Perſp. *in Robuſt, and hinders it in weak Perſons* 1 68
Upon one Part only how prejudicial 1 111
Intenſe, why not ſo bad as Mild 1 113
Sudden upon Heat, *its Conſequences* 2 9
How ſooneſt taken in Summer *Nights* 2 40
Crudities, *how produced after too large* Perſp. 1 44
Prevented, keeps off Diſeaſes 3 89
Catharticks *moderate, how they lighten the Body, and if rough how they make it heavier* 1 28
Cooling *Things in* Accute Feavers, *how Fatal* 1 116
Corruption *of the* Humours, *how prevented* 1 120
Carbuncles *in the* Plague, *whence* 1 127
Not from an Aduſtion *of* Humours 1 131
If they diſcharge the Infectious Humours *it is good, otherwiſe not* 1 132
Coffee, *how it may prove hurtful* 2 15
Concentration *of the* Vital Heat, *what* S. 1 A. 68 2 52
Concoction *bad, equivalent to an empty Stomach, with Relation to* Perſp. 3 2
When bad, how known 3 12
How diſtinguiſhed from Digeſtion 4 63
Currants, *how they leſſen* Perſp. 3 27
Cucumbers, *how prejudicial* 3 92
Conſent of Parts, *whence* 4 40
Conſumptions *how occaſion'd by violent* Exerciſe 5 8
Cupping *in a groſs Body, why hurtful* 5 22
Carriage *in a* Charriot, *hurtful to the* Reins 5 30
Coition immoderate, *how it waſts the Spirits and weakens the Fibres* 6 3
With one much loved why not hurtful 6 6
Cools the Body 6 8
eſpecially the Stomach 6 10

Moiſt

	Sect.	Aph.
Moſt hurtful in Summer	6	11
Occaſions Crudities	6	15
How it hurts the Eyes	6	18
Deſtroys the Vital Heat	6	21
Requires a ſlender nouriſhing Diet	6	22
Obſtructs Perſp.	6	37
Coition, *when beneficial*	6	4
To know when hurtful	6	9,28
The more deſired tho' leſs hurtful	6	13
Without Ejection *what its Conſequences*	6	16
Heats the Liver *and* Reins	6	23
Moſt hurtful to Lean People	6	26
Exerciſes the Mind	6	27
Beſt when the Stomach *is empty*	6	33
Good when natural, but bad when forced	6	35
Hurtful to Weak Perſons	6	36
Beſt after Sleep	6	41
Not good after Exerciſe	6	41
Canine Motion, *in* Coition, *bad*	6	39

D.

DOgs, *why they* Perſpire *moſt by their* Lungs	1	5
Diſeaſes, *their firſt Attacks beſt found by the Changes of* Perſp.	1	42
How removed	1	81
Death, *how brought about*	1	81
Dropſies, *why the* Humours *do not then* Perſpire	1	94
Digeſtives *Warm, beſt in* Inflammatory Tumors	1	97
Dieureticks, *of what uſe in* Autumn	2	46
Digeſtion, *how to be known*	3	19
How diſtinguiſhed from Concoction	4	63
Diarrhæa, *how it hinders* Perſp.	3	22
How it occaſions Faintneſs	3	93
Drink, *generally uſed to Exceſs*	3	68
Between Meals hurtful	3	97

Debauch,

Seƈt. Aph.

Debauch, *of Wine over Night, why remedyed by taking a plentiful Glaſs next Morning* 3 78

About once a Month in ſome of Service 3 100

Dreams, *why they hinder* Perſp. 4 4

Dancing, *of what Service* 5 33

Diſeaſes, *from* Grief, *why agree with thoſe from* Foggy Air 7 14

Diſappointment *in* Vener. Inclinations, *how bad* 7 16

E.

EVacuations Senſible, *altogether not ſo much as* Inſenſible Perſpiration *alone* 1 4

The Diminution of one, the Encreaſe of another 1 5

An Encreaſe of altogether cannot be at the ſame Time 1 12

In a Viſcid Blood *without* Stimuli, *doe more hurt than good* 1 26

How one Influences another 1 53

Encreaſed by Stool, Urine, *or* Phlebotomy *wherein dangerous*; *by* Perſp. *how ſerviceable* 1 60

To be gradually made 1 114

By Violent Exerciſe *how hurtful* 5 8

Excrements, *the Fluid heavieſt* 1 25

And lighten the Body moſt 1 26

Exerciſe, *unuſual Intermiſſion, abates* Perſp. 1 57

When moſt Serviceable 1 74

Violent in a pleaſant Air, how hurtful 2 16

When moſt Advantageous 5 7

What its good Conſequences 5 9

Of two kinds, of the Body *and of the* Mind 5 14

Of the Mind, *which moſt hurtful* 5 16

Too much drys the Body 5 18

Violent, either of Body *or* Mind *deſtructive* 5 19

Why bad in groſs Conſtitutions 5 20

Sect. Aph.

How to know when beſt 5 23

Too much, hardens the Fibres 5 35

Eating *too much, nouriſheth too little* 3 54

Weakens the Stomach 3 55

After hard Exerciſe, not Safe 3 72

To know when moſt proper 3 77

Plentifully, how it procures Sleep *after good* Perſp. *and hinders it after bad* S. 4. A. 22, 23

Plentifully, after Coition, *deſtructive* 6 32

Eatables *what bad after* Coition 6 25

Exceſs of Living, *how injurious* 3 74

Eyes, *how hurt by immoderate* Coition 6 18

F.

FAſting, *its bad Conſequences* S. 3 A. 15,16

How it proves Fatal 3 17

How to know when good, and when bad 3 32

Safeſt in the higheſt healthful Standard, *but worſt in the loweſt* 3 70

Its Conſequences in Bilious Perſons 4 21

Why it proves Injurious 3 86

Food *Liquid, generally heavieſt* 1 27

Viſcid, how it hinders Perſp. 1 67

To know which nouriſhes and Perſpires beſt 3 28

Too ſparing, how deſtructive 3 40

In ſmall quantity not felt in the Stomach 3 83

Drying, beſt in a Morning, in Phlegmatick Conſtitutions 3 88

Feeding *plentifully, hurtful to* Sedentary Perſ. 3 29

After hard Exerciſe, *not good* 5 6

After Coition, *deſtructive* 6 32

Fulneſs *too great, occaſions bad* Qualities 1 18

Not to be removed by Evacuation 1 19

Fleſh *Cold, after Sleep, a bad Sign* 4 24

Fleſh-Bruſh, *when moſt of Service, and how* 1 74

Fiſh,

Sect. Aph.
Fiſh, *why not good at* Supper 3 91
Feavers intermitting, *whence* 1 95
Putrid, *why in* Autumn *moſt* 1 115
Upon a Diminution of Perſpiration, *beſt cured by* Evaccuation, *from* Dr. Pitcairne 2 10
Why their firſt Attacts *felt after* Sleep 4 24
Why dangerous after Grief 7 10
Fainting, *when ſerviceable in* Feavers 1 98
Frictions, *upon a full* Habit, *hurtful* 5 22
Bad to Cholorick Perſons 7 33
Flatulences *in the* Hypoconders, *whence* 1 102
In the Stomach, whence 3 12
Flatus, *what* 3 13
Fomentations, *when hurtful* 1 103
Figgs, *how they leſſen* Perſpiration 3 27
Feet Pain, *when cur'd by* Walking *and when by* Reſt 5 13
Fear, *hinders* Perſpiration 7 1

G.

Gripes, *how occaſioned by Cold* Air 1 5
Gravity, Abſolute *and* Specifick
Gouty Humours, *diſcharged only by* Perſp. 1 88
Gangrene, *what its Conſequences* S. 1 A. 106, 107
Garments Warm, *how of uſe in* Autumn S. 2 A. 46, 47
How aſſiſt Perſp. 2 59
Gravel, *how occaſioned by* Immoderate Coition 6 24
Grief, *deſtroys* Perſp. 7 1
Continued, how it cools the Body 7 9
Going to Bed very Injurious 7 15

H.

Health, *its moſt certain Sign* S. 1 A. 30, 62
How to preſerve it to a great Age 2 54

Sect. Aph.

Head *in* Pain, *how it makes the* Body *heavier* 1 41
Why affected by an Acrimony *of the* Juices 4 10
Light after Sleep, what a ſign of 4 43
Heat Vital *and Natural, what* 1 68
As the Bloods Velocity *in each* Part ibid
Deſtroyed by Immoderate Coition 6 21
In different Parts *how different* 6 31
Heat *of the* Weather, *moſt uneaſy to thoſe who Perſpire ill* 1 78
Its gradual Encreaſe leaſt hurtful 2 31
Hœmorrage Periodical, *an Inſtance of it.* 1 60
Hypocondriacal Perſons, *how to be treated* 1 102
Whence their Pains *and* Wind 3 12
Why the better for Riding *and* Exerciſe 3 12
Hypoconders *inflated, whence* 3 86
Honey, *how uſeful and how injurious* 3 101

I.

INfections *how Communicated* 1 77
Itch *how Catched* ibid.
Juices *undiſgeſted, expelled by* Violent Exerciſe 5 2
Inactivity *of* Mind, *hinders* Perſp. 5 15
Inclinations *after* Venery, *of what Effect* 6 7
Injuries *from* Coition, *when moſt felt* 6 17
Joy, *helps* Perſp. 7 1
How raiſed by a plentiful Perſp. 7 23
Immoderate, *how hurtful* 7 24
Moderate, *how beneficial* 7 25
Sudden, *why deſtructive* 7 26
Long continued, hurtful 7 28

K.

KIdneys *how heat by* Coition 6 23

L. Sect. Aph.

LAbour hard, *how it binders* Perſp. 1 49
Looſneſs, *how it binders* Perſp. 1 54
Removed by Warm Baths 1 90
In Healthful Perſons, whence 3 104
Limbs, *ſtretching, how it helps* Perſp. 1 74
Lice, *how Produced* 1 76
Lungs, *what they Perſpire in Proportion to that of the other Parts; as One to Ten* 1 82
Liquors Spirituous, *how hurtful* 2 15
New, *how they aſſiſt* Perſp. 3 81
Litter Carriage, *not ſo good as* Walking 5 28
Leaping, *its Conſequences* 5 31
Lean Perſons, *moſt hurt by* Coition 6 26
Languor's, *how from* Immoderate Coition 6 29
Liver, *heat by* Coition 6 42

M.

MAtter *of* Inſenſible Perſp. *from whence Diſcharged* 1 15
Obſtructed and not otherways Diſcharged raiſes Feavers 1 11
Such diſcharge, not without Injury 1 10
How it Putrefies 1 43
How it produces Schirri 1 45
How a Slight Feaver *removes it, and how it occaſions a* Malignant Feaver 1 46
How Hot 2 37
Ariſing in Sleep, *differs from that when* Awake 4 16
Why the groſſeſt diſcharges when Awake 4 45
How both Hot *and* Cold *in* Hypocondriacks 7 13
Medicines, *not ſafe in the beginning of* Feavers 1 47
When Improper 4 53
Injurious in the Plague S. 1 A. 139,140
Midriff, *how it acts in* Rſepiration 1 124

Manaicks,

Sect. Aph.

Manaicks, *their* Fibres *hardened* 2 13
Why they bare large Evacuations ibid.
Meats, *moſt nouriſhing, Perſpire leaſt* 3 4
è contrà 3 5
Keep the Body Heavieſt 3 6
Accuſtomed Perſpire beſt 3 7
Of what Qualities hinder Perſp. 3 18
The more nourſhing the worſe if not digeſted 3 21
How to find the proper Quantities to be Eat *at one* Meal S. 3 A. 34,38,39,41,57
Of Different Nouriſhment, *leave Different* Weights 3 45
Of leaſt Nouriſhment *hardeſt to be Concocted in the* Stomach, *but of the moſt* Nouriſhment *hardeſt to be Digeſted in the* Arteries 3 46
Moſt Looſening 3 47
è contrà 3 48
That beſt Perſpire, *leaſt apt to* Corrupt 3 60
è contrà 3 61
Liquid moſt ponderous 3 64
That Perſpire beſt, ſooneſt Recruit after Venery 1 80
Of eaſy Perſp. *beſt for Weak Perſons, and after* Feavers 4 16
Of difficult Perſp. *how aſſiſted* 3 82
After violent Exerciſe why hurtful 3 95
Meals, *ought to be kept to Regularly* S. 1 A. 43,44,45,46
Too large, more hurtful then a greater Quantity at ſeveral Times S. 1 A. 37,43,85,90
Mutton, *eaſily Perſpires* 2 8
In what Conſtitutions moſt Serviceable 2 9
Muſhrooms, *how hurtful* S. 2 A. 23,24
Melons, *hinder* Perſp. *a fourth Part* 2 25
How they go off by Urine 2 26
Mind *Diſturbed, how it hurts* Digeſtion 3 96
Inactive, hinders Perſp. 5 15

Sect. Aph.
How it may be ſaid to Exerciſe *or* Reſt ibid.
Much Exerciſed by Coition 6 27
Melancholly, *how removed* 7 17

N.

NAtures being Employed, *what meant by it* S. 1 A. 52,53
Strengthened, what 1 68

O.

OLd *Perſons, with bad* Lungs *to be treated only with* Pectorals 1 82
Hurt by hard drinking, *by* luxurious eating, *by* Paſſion, *by* hard exerciſe, *and by* Venery 1 84
Why not reach a decrepid Age 1 85
Old Men, *moſt hurt by* Coition 6 30
Old Age, *a Diſtemper* 1 83
Oil, *how uſeful upon* Bathing 1 122
Overcharge, *gradual, why by Degrees to be* Evac. 2 44
And why beſt in Autumn 2 45
Obſtructions, *how occaſioned by* Greif 7 37
How they produce Evil Paſſions 7 32

P.

PErſpiration, *neceſſary to be underſtood by all that pretend to* Phyſick S. 1 A. 1,2,3,61. S. 3 A. 75
Greater than all the ſenſible Evac. 1 4
To the other Evac. *as* 5 *to* 3 1 6
Different in different Perſons 1 7
Of two Kinds and how they differ S. 1 A. 20,75
The more inſenſible the better S. 1 A. 20, 24
Its waſt Fifty Ounces in a natural Day 1 2

Why

Sect. Aph.
Why it becomes viſible and how injurious 1 22
Hindred, how it hurts the other Functions 1 40
Not all Times alike, when Moſt and when Leaſt 1 58
Lightens the Body more than all the Evac. 1 57
Carrys off three Pound in one Night 1 58
Cæteris pacibus, *as the* Vitall Heat 1 68
Its total Obſtruction Death 1 86
Obſtructed in the Neck, *how it hurts the* Head 1 119
How much may be Obſtructed without Injury 2 11
How of Service in Hot Seaſons 2 28
Encreaſed, unleſs as a Remedy, *Injurious* 2 33
In Strong Perſons, why moſt by Day in Summer *but moſt by Night in* Winter 2 34
Obſtructed, why more dangerous in Summer, *than in* Winter 2 35
Its difference between a Good and a Bad Digeſtion 3 1
Why moſt plentiful in robuſt Perſons 3 14
Why ſooner diſturbed in Sleep *than when* Awake 4 14
Greateſt, eight Hours after Eating 4 29
Why Encreaſed by Sleep *after long* Watching 4 54
Not ſo much in Violent Exerciſe, *as in* Sleep 5 1
Obſtructed, how it occaſions Greif 7 5
How aſſiſted by Joy S. 7 A. 6, 10
How hindred by Greif 7 8
Precipice, *by aſcending, how to Judge of* Health 1 17
Purges moderate, *how they lighten the* Body 1 48
Rough, *how they make it heavier* Ibid.
Pain, *how it hinders* Perſp. 1 49
Periodical *in the* Head, *an Inſtance* 1 66
Puncture of a Nerve, *how to be managed* 1 99

Sect. Aph.
Plague, *how propagated, & how ſtopped* S. 1 A. 126, 127, 134
From external Cauſes 1 129
Why worſe to thoſe who have Weak Lungs 1 135
Removed by Winds 1 137
Only to be fled from 1 138
Why it Continues 1 140
Not to be treated with Medicines ibid.
Proportion *of the* Evacuations *in one* Night, 4 *Oun.* *by* Stool, 16 *by* Urine, *and* 40 *by* Perſp. 1 59
Of Food, *moſt Healthful, how to find* 3 36
Perſons, *lighter in* Summer *than* Winter 2 23
And Weaker S. 2 A. 24, 25, 26
Pork, *how hurtful* S. 3 A. 23, 24, 25
Paſſions of the Mind *Violent, waſt more Spirits than Violent* Exerciſe 5 17
To be conſidered as Phyſical Agents *their Effects no otherways known* 7 1
Contrary, remove the diſorders of each other 7 11
Varied, how Beneficial S. 7 A. 20, 47
Immoderate, how to be removed S. 7 A. 21, 22
Immoderate, worſe than Violent Exerciſe 7 34
Palpitations, *why from immoderate* Coition 6 10
Poſture ſtanding, *in* Coition, *how bad* 6 40

Q.

QUalities *bad, from too great* Fulneſs 1 18
Ill, in very minute Particles 2 13
Quantity, *that ought to Perſpire, how to know* 1 64
Quotidian Ague, *why moſt Dangerous* 1 118
Quiet *in* Bed, *more conduc. to* Per. *than* Motion 5 4

R.

RElative Weight *of the* Body, *what* 1 29
Heat, *what* 2 27
Robuſt Perſons, *why they Perſpire the groſſeſt Matter* 1 108

Sect. Aph.
Refrigeratives, *in Accute Diſtempers Mortal* 1 121
Reſt *in* Bed, *more conducive to* Per. *than* Motion 5 4
Long continued, what its Conſequences 5 12
Riding, *in what* Parts *it moſt promotes* Perſp. 5 27

S.

STandard of Weight *always the ſame, a ſign of* Health S. 1 A. 15,16
Of Health, *the greateſt haſtens* Old Age 1 79
Of a great Latitude 1 81
Below Healthful worſe than Above S. 1 A. 31,32
Speciffick Gravity, *what* 1 26
Sleep, *after* Eating, *why it makes People Fat* 1 50
Uncovered, why Hurtful 2 36
How it promotes Perſp. S. 4 A. 20,21
Perſ. *twice as much as when Awake* 4 12,18,19
With Sweat Diſcharges no more than without it 4 3
Lightens the Body *two ways* 4 4
Interrupted, hinders Perſp. 4 5
Perſpires more than Exerciſe S. 4 A. 6,8,30
Requires Digeſtion, *in order to* Perſp. 4 7
Diſturbed by the Acrimony *of the* Per. Matter 4 9
A want of it leſſens Perſp. 4 15
When moſt Uſeful 4 28
How of Service after Dinner 4 31
When moſt Advantageous 4 41
How it Moiſtens the Solids 4 44
How it abates Thirſt 4 46
Too much how hurtful 4 50
Why worſt to Cholerick Perſons ibid.
After Dinner *why Hurtful* 4 66
In what Poſture *beſt* 4 68
Sweat *an ill ſign of* Health 1 110
Of what Service in hot Seaſons S. 2 A. 28,30
Is Perſp. *made Senſible* 2 30

Much

Sect. Aph.
Much after Drinking, a ſign of great Strength *or great* Weakneſs 3 66
Cool after Sleep, a ſign of the Gout 4 69
Always from ſome Violent Cauſe 5 3
How Injurious to the Complexion 5 36
Strength, *diminiſhed two ways* S. 1 A. 33,34
In a Triplicate Proportion *to the* Quantities of Blood 1 93
Spitting, *Serviceable to Old People and how* 1 82
Suffocations *in* Women, *whence* 1 87
Spots *in the* Skin, *whence* 1 105
In the Plague, *whence* 1 127
Not from an Aduſtion *of Humours* 1 131
Sphincter *of the* Bladder- *its* Office 1 125
Scales Hydroſtatical, *their Uſe* 2 5
Swimming *in the* Evening, *why beſt* 1 112
After Violent Exerciſe, *why Fatal* 2 14
After Exerciſe, why bad 5 24
Stimuli, *when hurtful* 2 16
Spring, *what* Courſes of Phyſick *then beſt* 2 49
Standard of Health, *when beſt procured* 2 43
Srandard of Weight, *its frequent Changes bad* 2 55,56
Stomach, *how too full or too empty leſſens* Per. 3 10
Emptyed by Faſting *worſe than by* Phyſick 3 87
Cooled by immoderate Coition 6 10
Stools Conſiſtent, *a ſign of good* Perſp. 3 30
Liquid, rob the Body of its Nouriſhment 3 31
Standard *loſt by too ſlender* Diet, *hard to be Rec.* 3 33
Sloth, *very injurious to* Health 3 105
Stretching, *how of Service, and whence* S. 4 A. 33,34,36
Spirits Animal, Vital, *and* Natural, *what* 4 49
Steams *from* Perſp. *how they Influence others* 4 58
Sight, *how hurt by* Coition S. 6 A. 18,19,20
Study, *why hurtful without* Variety 7 44

T. Sect. Aph:

Toſſing *in* Bed, *how it hinders* Perſp. S.1 A.51,90
Tender, *to keep the Body ſo, how hurtful* 1 55
Tumours Hot, *to be treated with warm* Digeſtives 1 97
How they Degenerate into Schirri 1 100
Not to be Cooled 1 101
Tobacco, *how it may prove hurtful* 2 15
Tears, *after Drinking a ſign of bad* Perſp. 3 67
Temples *beating, whence* 3 86
Travelling, *to whom moſt hurtful* 5 5
Trot, *the moſt Unwholeſome Riding* Pace 5 27
Top-Whipping, *how Wholeſome* 5 32
Thoughts Venerious, *their Effects* 6 5
Teſticles, *Swelled by a Retention of* Semen *in* Coition 6 17

V.

Viſcera, *not of equal Strength, how injurious* 1 39
Vomiting, *hinders* Perſp. 1 54
Diverts Urine *and* Perſp. 1 89
How it may hinder Perſp. *and encreaſe the Weight of the Body* 3 53
After a Meal, why Weakening 3 98
Venery, *its Diſuſe how hurtful* 1 67
How its Injuries removed by Sudden Cold 2 38
Too much, and too little hinders Perſp. S.6 A.1,2
Venereous Thoughts, *their Conſequences* 6 5
Urine, *too large why it hurts* Perſp. 1 27
Why in Weak Perſons moſt in Winter; *and in Strong, moſt in* Summer 2 19
Much after Hard Drinking, *a ſign of great* Strength *or great* Weakneſs 3 66
Ulcers, *hurt by* Unctious Applications 1 117
Uneaſineſs *under* Heat, *from whence* 2 27
Vapours *in the* Stomach, *whence* 3 12
Variety *of* Meats, *its bad Conſequences* 3 51

Weight

W. Sect. Aph.

WEight, *a Senſe of it without any real Encreaſe, is bad, and why* 1 28
Of the Body abſolute and relative 1 29
Why its Decreaſe after Sleep, good 1 38
Encreaſes once a Month in Men *as well as in* Women, *and from what cauſe* S. 1 A. 65,66
That ſeldom changes, the beſt Sign of Health 1 69
Its Decreaſe after plentiful Eating how occaſioned, and hurtful S. 3 A. 58, 59, 63
Water cold, *how it may hinder* Perſp. 1 67
Drinking, *how injurious* 1 94
Why it Stagnates in Dropſies 1 96
How to know its Weight 2 5
The lighteſt, moſt wholeſome ibid.
The heavieſt, how it produces Gravel ibid.
Drinking, *how it hinders* Perſp. 3 67
Wind, *how it hinders* Perſpiration *and hurts the Head* S. 2 A. 20, 21
In Violent Exerciſe why bad S. 5 A. 25, 26
Women, *why moſt free from Defluxions* 2 62
Wine New, *how it aſſiſts* Perſp. 3 81
How good, and how injurious 4 62
Watching *continued, how it lightens the Body* 4 55
How Prejudicial 4 53
How it will render the Body heavier 4 57
Wearineſs *after Sleep, from what Cauſes* 4 64
By what removed 4 67
After Coition, *why an Ill Sign* 4 34

Y

YEar, *the dryeſt* ***Seaſons,*** *moſt healthful* 2 22
Yawning, *a Sign of good* Perſp. 4 32
Of what Service S. 4 A. 33,34
Young-Men, *how the better for* Coition 6 31
Digr. 1.

The Contents of the Digreſſions.

Page
DIGR. 1. *All Bodies Attract and are Attracted of one another.* 124
To this Property is oweing the inteſtine Motion of all Heterogeneous Fluids. ibid
Its Exertion prevented by any Superior Force impreſſed ab extra; *but where the external Force is weaker than this Property in ſome Parts, there ariſes then only a Partial Attraction; which is the Caſe of the Animal Fluids in their Circulations.* 125
Three different Motions in the Blood, viz. Circulary, Agitative *and confuſed, or* Fermentative.
Why the moſt Nouriſhing Meats tend moſt to Corruption, *or* Putrefaction 126
Digr. 2. *Whence Periodical Diſtempers in general, and what neceſſary for their Cure.* 178
The general Cauſe of Agues, *an encreaſed Viſcidity of Blood.* ibid.
The Blood grows Viſcid by an encreaſe of its Quantity, or by a Diminution of its Velocity, or both. ibid.
How theſe bring it about 179
The Quantity of Blood may be encreaſed, and the Solids too Strait, which is the Caſe in Inflammatory continued Fevers 180
The difference between Intermittent and continued Feavers ibid.
The particular Cauſe of an Ague, *a relaxed State of the Solids, and a Viſcid Blood together.* ibid.
How theſe are both brought about. 181
What is required in Order to their Cure 182
What brisk Motion does, and what Volatile and Piperine Medicines ibid.
No Cure to be perfected without drawing up the Solids ibid.
Why the Fitt goes off, and returns at certain Periods 183
What the Bark *does towards a Cure* ibid.
How Perſons are Cured by Frights, Amulets and Charms 184
To draw up the Solids before the Lentor *of the Juices is removed, why Dangerous* ibid.
The Lentor, *is removed by* Vomits *and Volatile Medicines. And the Solids are drawn up by all Sub-Aſtringents and Exerciſe* 185
How the Bark *comes to be accounted a* Speciffick ibid.
In what conſiſts thoſe Properties by which it Cures 186

How

How a Cure is brought about by the Bark 187
It Acts both as an Aſtringent and an Alterative ibid.
The Blood the cheif Seat of its Effecacy ibid.
Dr. Coles Hypotheſes *needleſs* ibid.
Why the Ague *returns after a Cure by the* Bark ibid.
The Conſtitution of the Blood muſt be right before a Cure can be made, that will laſt 189
A Cure may Infallibly be made by Aſtringents, Bitters, Steel, Aromaticks, *and the like, although the Patient is falling into a* Dropſie, Jaundice, *or any other Diſtemper which follows a long* Ague, *if Uſed with Judgment.* 190
Why Evacuation, ſoon after Cure returns it ibid.
Why a long Ague *hardeſt to Cure* 191
Digr. 3. *The mutual dependence of the Solids and Fluids upon one another; the Spring of Motion in the former* 212
The Difference between that Mechaniſm *in the Muſcles by which they obey the Dictates of the Mind; and that in the Heart and Arteries, by which they Vibrate involuntarily.* 213
Neceſſary that the Solids ſhould be continually kept moiſt, by ſome convenient Fluid. 214
What the peculiar Contexture of at Animal Fibre. ibid.
Its Reſtitution or Contraction, from the ſame Cauſe as the Embolus *of a* Syringe. 215
The Fibres in a living Body always under a State of Diſtraction. 216
To preſerve their Powers of Reſtitution, ſome Vacuola *neceſſary between their Conſtituent Parts.* ibid.
The Requiſites of the Fluid with which they are to be moiſtned. 217
How the Terms, Diſtraction, Vibration, Concuſſion, &c. *of the Solids to be underſtood.* ibid.
How the Alternate Diſtractions *and* Conſtractions *of the* Heart *and* Arteries, *are preſerved; by which the* Blood *is kept in Motion.* 218
The Conſequences of ſuch Motions, a continual Change, or they would laſt for ever. 219
How the Fluids are broke and wore away by it. ibid.
The Matter of inſenſible Perſpiration, *cheifly from the nervous Fluid.* ibid.
How a continual Recruit neceſſary, and how ſupplied by a nearer way than from the Blood. ibid.
The Nervous Fluid *and* Animal Spirits *the ſame.* 220

What is not corporeal, and ſubject to mechanical Laws, does not belong to a Phyſitians *Conſideration.* ibid.
How a Gymnaſtick Practice *is ſupported by this* Theory. 221
How the Nervous Fluid *is diſordered, and how remedyed.* 222
Health *conſiſts in an* Equilibrium *between the Force of the* Solids, *and the Reſiſtance of the* Fluids 223
The moſt Natural Practice depends upon knowing how that Equilibrium *is loſt, and how to reſtore it* ibid.
The Effects of Muſick *upon the* Solids ibid.
Why rough Exerciſe Injurious 224
How Exerciſe encreaſes Strengh ibid.
The Conſeqaences of ſudden Repletion, *or* Evacuation
Digr. 4. *An* Inflammatory Feaver *deſcribed* 272
A Nervous Feaver *deſcribed* 273
How the former Changes into the latter 274
Wherein they differ ibid.
Why Evacuations *bring on, and are Fatal in all* Nervous Feavers 275
To keep the Body Laxative, why dangerous 276
The Cauſes *of a Nervous Feaver, and its* Periods 277
How to be Managed ibid.
Stupidity *and* Convulſions, *whence* 278
The Morbid Matter, *not to be diſcharged by any* Evacuation ib.
Why Deafneſs *a good Symptom* 279
Bliſters *how Serviceable in* Nervous Feavers ibid.

ADVERTISEMENT.

THOSE *Perſons who have any Librarys or ſmall Parcels of Old Books to Diſpoſe of, either in* Town *or* Countrey, *may have Ready Money for them of* Will Newton, *Bookſeller in* Little-Britain, London. Alſo all *Gentlemen, and Schoolmaſters, may be Furniſhed with all Sorts of* Claſſicks, in Uſum Delphi. Variorum's, *&c. Likewiſe, he will Exchange with any Perſon, for any Books they have read and done with.*

Opds

[illegible]